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THE PRACTITIONER:

A Monthly Journal

OF

THERAPEUTICS.

EDITED BY

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VOL. I.

JULY TO DECEMBER.

London :

MACMILLAN AND CO.

1868.

421231
3.4.44

LONDON :
R. CLAY, SONS, AND TAYLOR, PRINTERS,
BREAD STREET HILL.

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PREFACE.

IT is admitted on all hands that the present state of Medical Science is in one respect most unsatisfactory. While our knowledge of the facts of disease, as well as of the facts of healthy physiological life, has made great progress of late years, Therapeutics, or the science of healing, has remained very nearly where it was when Rousseau exclaimed, "*Laissez-moi mourir, mais ne me tuez pas.*" It is true that in the way of mere destruction of old delusions as to the infallibility of certain methods of treatment, much has been done; and it is also true that by purely empirical inquiry we have got possession of a few remedies—such as cod-liver oil, chloroform, iodide of potassium—which are of the greatest value; but it is none the less certain that an *exact* knowledge of the mode of handling remedies does not exist. Upon this point we shall not be accused of exaggeration, since we can produce the highest authority for our statement. Sir Thomas Watson made the following remarks in opening the First Session of the Clinical Society: "Certainly the greatest gap in the science of Medicine is to be found in its final and supreme stage, the stage of Therapeutics. . . . We know tolerably well *what* it is we have to deal with, but we do not know so well, nor anything like so well, *how* to deal with it. . . . We want to know distinctly what is the action of drugs, and of other outward influences, upon the bodily organs and functions; for every one now-a-days, I suppose, acknowledges that it is only by controlling or directing the natural forces of the body that we can reasonably hope to govern or guide its diseased actions. To me it

has been a lifelong wonder how vaguely, how ignorantly, and how rashly drugs are often prescribed."

It is difficult to exaggerate the weight and significance of these words, or the urgency of the need to which they point. There can be no doubt that they have aroused a lively interest in an unjustly neglected but all-important branch of Medical Science; and that henceforth medical men will feel compelled to take into serious consideration the principles on which they proceed in the administration of medicines.

One of the greatest wants of the medical profession in this country is a special medium for the intercommunication of ideas respecting the action of remedies. Scattered over the kingdom there are a considerable number of able men who are already engaged in careful and scientific observation of this kind, but who, from lack of the opportunity of communicating with each other, waste much time and energy in repeating experiments which have already been made, and in committing errors of observation which some fellow-worker could have saved them from. Again, the mass of medical men, who are deeply engaged in practice, and have small time for carrying out methodic experiments in treatment, would probably be much helped if they could have access to brief and clear records divested of all unnecessary technicality, of the results which have recently been worked out on the large scale in the great hospitals of this country, and, with far greater fulness and elaboration, in those of France and Germany, as to the action of some of the most important classes of remedies. Some of these results are really of the highest *practical* value, and yet they are completely unknown to the majority of English practitioners.

It is in the hope of assisting towards a better common understanding on these important subjects that we have determined to establish the Journal which we have now the pleasure to announce. "THE PRACTITIONER" will appear monthly, and will thus supply the most recent information obtainable on all subjects connected with the application of

remedies for disease; and as its bulk of matter will not be great, it is hoped that busy men will be able to master its contents without difficulty. It is proposed that each number shall contain a series of short original articles upon important special subjects in Therapeutics; a brief *resumé* of the more interesting items of treatment recorded in the foreign journals; short reviews of important works bearing on treatment; a brief sketch of Practical Medicine for the month, as observed in the London and provincial hospitals; a department for Notes and Queries, in which correspondents may ask, and obtain replies to, questions in reference to problems on which they desire to have the opinions of other medical men; and, finally, a bibliographical list for the month.

The Editors have been fortunate enough to obtain promises of assistance from some of the most eminent members of the profession; and they will be able to lay before their readers Original Articles embodying the views of men whose experience in the subjects on which they will write is very great, and in some cases altogether unique. They hope to supply to the medical practitioners of this country the same kind of information which is widely disseminated in France, Germany, and Italy, by periodicals which are either entirely devoted, or accord a large space, to papers on the practical treatment of disease. They believe that they may reasonably count on the support of the profession for an undertaking which proposes to satisfy a want which, above all others, must be strongly felt by the medical profession in a country like England, which professes to value, above all things, practical results.

THE PRACTITIONER.

JULY, 1868.

Original Communications.

THE TREATMENT OF WOUNDS BY PNEUMATIC ASPIRATION.

BY M. LE DR. MAISONNEUVE,

Surgeon to the Hôtel Dieu, Paris.

IN a memoir which I recently laid before the French Academy, I pointed out what will probably strike many of my readers as surprising, but what is nevertheless rigidly true, that of every hundred patients who die after surgical operations ninety-five are poisoned by organic substances absorbed from the surface of the wound.

From time immemorial surgeons recognised the existence of poisoned wounds, such as those of the viper, the scorpion, &c., and the facts associated with these have received corroboration in subsequent ages by a multitude of observations upon glanders, hydrophobia, plague, and dissection-wounds. But while a principle was thus admitted, surgeons neglected to apply it to those numerous and grave accidents which accompany both natural and artificial wounds. So far, indeed, from this, we find even Dupuytren¹ speaking of "traumatic fever," not as an accident, but as "an effort of the organism to bring about the cure of the wound." Such was the condition of surgical science when the

¹ Dupuytren, Clin. Chirurg. tome vi. p. 87.

writings of Monteggia in 1813, of Ribes in 1817, and of Breschet in 1820, drew attention to phlebitis, a malady till then unknown, and demonstrated its terrible consequences. A little later the works of Dauce and Maréchal in 1828, and those of Velpeau in 1826-27, established the fact that phlebitis, and absorption of pus, which is its consequence, were the source of that fearful affection which was so long a mystery to surgeons, and which went by the name of the putrid fever of amputations.

Strange to say, this brilliant discovery produced no practical fruits. Surgeons made no alterations in either their mode of dressing wounds, or their method of operations. They were a little more careful in operating on parts largely supplied with veins, but beyond this nothing was attempted, and the mortality consequently was very slightly diminished. It was this negligence which called forth the following remarks from M. Denonvilliers :¹—"Purulent infection has been made a technical question quite long enough. It is time that so grave and frequent a condition was examined from a practical standpoint, and that hospital surgeons studied carefully the circumstances under which the malady is developed, and the influences exercised in its production by modes of dressing, diet, temperature, season of the year, and so forth."

Singularly enough, however, the same *savants* who substituted for the vague explanations of their predecessors the intelligible and simple theory of this accident to which we have referred, set about explaining the development of phlebitis by laying the blame of their disastrous operations upon electricity, ozone, heat, moisture, and the unhealthiness of the air in the hospitals of Paris ;—in fact, that this unfortunate malady was an accident beyond human control. "You know," said recently an eminent surgeon,² "that for a long time the atmosphere of Paris is fatal to our operations. In spite of all our care, we see our cases sink under the influence of causes which we cannot explain. There are operations which never succeed under the conditions in which we are placed."

Notwithstanding these despairing assertions, enthusiastic workers have struck out new paths, and have been rewarded by

¹ Compendium de Chirurgie, tome i. p. 386.

² Nelaton, Gazette des Hôpitaux, 1867, No. 17.

unhoped-for discoveries. The first and most remarkable of these was the "subcutaneous method," which, attacking the operations which were thought most dangerous, demonstrated in an irrefutable manner that a simple modification of a method of operating can transform the most fatal into the most successful operations, and that without altering those thousand hygienic conditions on which surgeons were accustomed to throw the blame of their unsatisfactory cases. Shortly after this came alcoholic and antiseptic dressings; and most recently of all, pneumatic aspirations. These form a therapeutical series such as has never before been produced in the history of the *ars medendi*, and definitively corroborate one of the most important and fertile theories of science, the theory of surgical poisonings.¹

In the memoir referred to I have shown how the liquids exuded from the surface of wounds die when exposed to the external air, and how subsequently they putrefy, and thus become formidable poisons. From this fact I draw the conclusion that : *If we can prevent the dead liquids from putrefying on the surface of wounds, the gravest operations of surgery—such, for example, as the amputation of limbs—may be performed without compromising the life of the patient.* What we have to do, then, is to find a simple and practical process which fulfils this indication, if not for all operations, at least for the most serious ones; and the process which I have had the honour of laying before the Academy appears to meet the end in view perfectly, at least for the formidable group of limb-amputations.

The method I have devised, and which is termed PNEUMATIC ASPIRATION, consists in submitting the stump of the amputated limb to continued suction (vacuum), so as to draw off all the liquids as fast as they are formed, and to convey them away before they have had time to putrefy. This is how the process is carried out :—After having stopped the hæmorrhage in the usual way, by means of ligatures to the vessels, I clean the wound with the greatest care, wash it with alcohol, and wipe it with a dry cloth. I bring the edges together with a few strips of diachylon, but without opposing an obstacle to the

¹ For an explanation of the physiological and pathological grounds on which this theory is based see my "*Mémoire sur les Intoxications Chirurgicales.*" Paris : Imprimerie Simon Raçon and Cie, Rue D'Erfurth.

flow of the secreted liquids. I then apply a layer of lint soaked in antiseptic liquids, such as tincture of arnica, solution of carbolic acid, or other suitable substance, and finally I fold the whole in a few bands of linen soaked in the same preparations. It is only after this preliminary dressing that the apparatus for exhausting the air is applied.

This apparatus consists (1) of an extremity of India-rubber, shaped like a lady's muff, and intended to embrace the stump, and a tube of the same substance; (2) of a vessel of four or five litres' ($3\frac{1}{2}$ quarts to one gallon) capacity, provided with a mouth-piece pierced with two holes; and (3) of an exhausting-pump, fitted with a flexible tube. The stump covered with its bandage is first placed in the "India-rubber muff," whose orifice embraces exactly the integuments of the limb, and the tube is placed in connexion with one of the holes in the mouthpiece of the vessel. To the other aperture I adapt the tube from the exhausting pump, and then I work the piston.

In a short time the air of the vessel is in great part drawn off, and the remainder is rarefied. The liquids of the dressing, mixed with those which proceed from the wound, follow the air, and flow into the vessel. The "India-rubber muff," deprived of the air it had contained, applies itself closely to the limb. The pressure of the atmosphere exercises—through the intervention of the India-rubber—a considerable compression of the stump, and thus keeps the divided surfaces in contact, and, combined with the continued exhaustion produced by the rarefaction of the air in the vessel, *prevents all accumulation* of liquid, and thus promotes and favours rapid cicatrization.

Since we have adopted this mode of treatment here, I have had several amputations of the thigh, all of which have healed with a marvellous rapidity: none of the patients suffered from traumatic fever. Amputation of the arm, fore arm, and foot, and even grave fractures complicated with wounds, have all been successfully treated by this method.

ON THE THERAPEUTIC USES OF BROMIDE OF POTASSIUM.

BY J. RUSSELL REYNOLDS, M.D., F.R.C.P.

THE therapeutic effects of bromide of potassium are seen with the greatest amount of certainty and clearness when it is given to those who are suffering from paroxysmal diseases. The uses of this drug are, however, not limited to those affections, but may be observed in many others of which obvious spasm forms no part. It became a "fashionable" medicine a few years ago; and, like some of its predecessors in the circle of fashion, was soon over-rated, and misapplied; it failed to do in all cases what it had been said to do in some; occasionally it appeared to be mischievous, and often it seemed inert; and so, within the last few months, there have arisen those who entertain doubts as to its possessing real value in the treatment of disease. Being confident, however, that it is one of the most important medicines that we possess, it will be well to illustrate, at the outset of this paper,—by a few cases, recorded as briefly as possible,—the fact of its definite utility. Having done this, it will be sufficient to give only the general results of its employment in other classes of disease, where the action of the medicine may be defined with a somewhat inferior degree of precision.

It is purposed, therefore, first to speak of the use of the bromide in the treatment of the following groups of diseases:— (1) Those marked by spasmodic contraction of the muscles. (2) Those characterised by disturbances of sensation. (3) Diseases displaying themselves in mental change; and (4) Affections of the vaso-motor system of nerves. A few remarks will then be

offered on (5) the mode of action of the medicine; and (6) on bromism.

I. Of those diseases which are characterised by *spasmodic movements*, the action of bromide of potassium is most conspicuous in epilepsy; and of this fact, the following cases will afford sufficient illustration:—

Epilepsy.—A man, epileptic for eighteen years, his fits having commenced at puberty, and having recurred with great severity and at a high rate of frequency during the whole period, took bromide of potassium for the first time in January 1864; and from that date until this has never had a single seizure. The dose prescribed in this case was ten grains, to be taken three times daily; it was continued for nearly twelve months, and was then abandoned. There was no other medicine employed, nor was there any change made in the place or mode of living of the patient.

A lady, epileptic for eight years, the fits being of most distinctive character and of frequent but irregular occurrence; and who, during the intervals of attack, suffered much from “nervous feeling,” great depression of spirits, incapacity for mental occupation, and constant “dread,” commenced taking the bromide four years ago. Ten-grain doses were prescribed, and with the effect of prolonging the intervals between the attacks; but, as the seizures returned, the quantity was increased, and again the fits for a time disappeared. They returned, however, for the third time, and the dose was augmented further. Similar events happened until the quantity of bromide administered was thirty-five grains, three times daily. This dose was commenced a year and a half ago, and since that period there has been no attack. The general health has been unimpaired, the nutrition of the body has been maintained, the menstrual functions have continued with perfect regularity, and almost the whole of the distressing feelings which formerly occupied the intervals of attack have disappeared.

A gentleman of middle age, overworked both mentally and physically, became epileptic four years ago. His attacks were of the severest kind, but during the intervals of their occurrence he presented no signs whatever of disease in any organ of the

body. His attacks had been frequent, and uncontrolled by "change of air," freedom from toil, dietetic regulation, and medicine. He began to take the bromide, in ten-grain doses, two years and a half ago, and immediately the fits ceased, and they have not returned. Here there was no change in the mode of living, but the individual referred to continued to do the same kind and amount of work that he had done before. The medicine was gradually diminished at the end of twelve months, and was discontinued a year ago.

A young lady, epileptic from early childhood, and whose fits were of very frequent recurrence, it being rare for her to pass through twenty-four hours without a seizure, and who suffered upon an average two fits a day, was first seen by myself several years ago, before the bromide of potassium had been employed in large doses. The drug was then given; but as it appeared to exert no influence upon the nature or number of the attacks, was discontinued, and other measures were employed without any beneficial effect. The intellectual faculties in this instance were most gravely injured. The patient could still read, but could not enter into anything even approximating sensible conversation. There was, however, no impairment of the "general health," and as, in spite of all treatment, the fits recurred with unaltered severity and frequency, all medicine was discontinued, and the patient was left to the care of her attendant nurse. She was lost sight of by me for nearly three years; but eight months ago I was again called to see her, as she had been rather more "restless" than usual in the intervals of her attacks, and it was hoped that something might perhaps be done to lessen the labours of her attendant. I then learned that the fits were as frequent as they had been in previous years, and that they had never shown any tendency to lessen or to change. The bromide of potassium was given, in scruple doses every six hours, and, from that day to this, there has not been one single fit. There has been no change, while taking these doses, in the uterine or general health; but there has been distinct, although slight improvement in the mental powers.

A young man, epileptic for seven years since puberty, and having from five to seven attacks during the day, has taken the bromide of potassium for nearly four years, and with this result

—that as the dose has been gradually increased the fits have diminished, and have now entirely subsided. Upon many occasions the attempts were made to lessen the dose; but within a few days of making such change in quantity, it was invariably observed that the fits recurred; and therefore, as no ill effects were recognised from its administration, it has been, and still is, taken in large quantity.

A lady, subject to frequent attacks of *le petit mal*, and to occasional seizures of *le haut mal*, gradually lost both forms of paroxysm when the dose of bromide had reached thirty grains, three times daily. During fourteen months there was no attack of any kind, but at the end of that time, having diminished the dose of the medicine, the fits returned; they have, however, again ceased upon reverting to the larger quantity.

The facts that I have now briefly stated are sufficient to show that the influence of bromide of potassium upon epilepsy is not to be referred to the “chapter of accidents,” but that it is an agent possessing a very distinct and beneficial effect upon one of the most distressing and obstinate of diseases. These cases are by no means rare or exceptional; they are, on the contrary, but a few specimens of what has been observed in very many others, and they are brought forward here in order to remove all doubt that might exist in the minds of some, who have not personally observed the action of the medicine in a large number of cases, as to its real efficiency. There is yet a further object in their citation, and it is this, to corroborate these general propositions—which it would be impossible to substantiate by details in this paper—viz., that in the vast majority of cases bromide of potassium is of signal service in the treatment of epilepsy; that it absolutely cures very many, and that it rarely fails to diminish notably the number of attacks in those whom it does not cure. As with other modes of treatment, not only of this disease but of all others, it is most successful in recent cases; but, as I have shown by examples, it does not fail to be of service in those of long standing; and it most certainly is as useful in those cases where the fits are frequent and severe, as it is in others where they are of rare occurrence and of milder type. In some persons it fails to exert any beneficial influence; but these instances form an exceedingly small minority; and in the present state of

uncertainty with regard to the exact pathology of the large group of diseases constituting what we term "epilepsy," such instances should not be allowed to detract from the reputation of so useful a medicine, but should only stimulate inquiry as to the nature of their departure from the more ordinary type of the disease.

The cases of epilepsy which have proved the most amenable to the action of bromide of potassium are those in which the attacks have been exclusively or prevailingly those of the severer type, *le haut mal*; in which the rate of recurrence has been rapid; and in which the fits have occurred mainly during the day; whereas, on the contrary, those that have resisted its action have been marked by a predominance of slight or abortive seizures, *le petit mal*; or have exhibited the severer attacks at rare intervals, or have suffered from them only during the night.¹

These statements, it must be remembered, are not absolute; they express only the general results of observation on many hundreds of cases; and particular exceptions occur to them in each direction.

Epileptiform Convulsions, occurring during the course of chronic or acute diseases of the brain, are often completely removed by bromide of potassium, the other symptoms of such diseases being in some cases relieved, in some removed, in others unaffected. Thus, a gentleman fifty-five years of age suffered an apoplectic seizure, was insensible for many days, hemiplegic on the right side, and frequently convulsed. Upon the return of consciousness the hemiplegia gradually diminished, but he remained aphasic, of enfeebled intellect, irritable temper, and a constant sufferer from pain in the head. Occasionally he improved slightly for two or three days, but was again thrown back by epileptiform convulsions. This state of things lasted for six months, during which time he was treated actively with many drugs and other appliances. Nothing, however, influenced the course of the disease until bromide of potassium was administered, when the fits ceased entirely, and have shown not the least threatening of return. Besides the effect mentioned in this instance there was distinct relief to the headache, and some slight diminution of

¹ See Dr. Duckworth Williams' paper "On the Efficacy of Bromide of Potassium in Epilepsy and Psychological Affections."

the irritability of temper. This case is but one of very many illustrating a similar action of the medicine.

Convulsions, not epileptiform in type, have sometimes been reduced by bromide of potassium, but, so far as my experience extends, only to such degree and with such irregularity as to make me doubt whether or no the relief was other than accidental. For example, a gentleman who after an injury to the back suffered several violent convulsions of epileptic character, became subsequently affected with persistent clonic spasms of the limbs. These spasms were sometimes so violent as to keep the patient in bed for many consecutive days, preventing him also from sleeping at night. Bromide of potassium appeared upon several occasions to diminish, and upon two or three to remove the spasms; but upon other occasions it failed entirely; and it happened to me more than once to witness the return of the spasmodic movements while the medicine was being continued, and that in large doses.

In very many instances of *general spasmodic jerks*, occurring only at night, I have given bromide of potassium, but unfortunately without observing any distinct remedial effect. The cases to which reference is made are by no means rare; the patient exhibits no irregular or spasmodic movement in the daytime, and while awake, but the moment that sleep comes on there are violent spasms of the muscles of the back and limbs, which sometimes throw the body off the bed, but when not sufficient to do this are quite enough to cause alarm and prevent the return of sleep. In some such cases I have given the bromide to the extent of causing bromism (see p. 17), but without finding that it produced the smallest effect upon the symptoms, whereas in a few milder examples there was relief. A somewhat curious case may be mentioned here, for the double purpose of illustrating the above general statement, and of showing the great difference to be observed between the action of bromide of potassium and of iodide of potassium. A gentleman æt. thirty, had, five months after his marriage, suffered from the spasmodic movements above described; he then became epileptic, and continued so for three months. He was, when seen by me, intensely anæmic, but not weakened in limb, intellect, or appetite. He was prescribed iron, quinine,

and cod-liver oil, and never had another epileptic seizure. His health appeared quite restored after the lapse of six months, with one exception, viz. the persistence of nocturnal jerkings. These were sometimes very severe, sometimes slight; but bromide of potassium exerted not the smallest influence upon them; and the same may be said of belladonna, stramonium, and opium. They were, however, reduced considerably by Indian hemp. Two years after the onset of symptoms this gentleman was exposed for a long time to cold and wet, his eyelids swelled very slightly, he suffered from severe headache, became again intensely anæmic, lost flesh, and was found to be passing urine so heavily loaded with albumen that it was rendered solid upon boiling. The nocturnal jerkings were worse than ever, and the general strength was greatly depressed. Treatment was adopted vigorously in this case, but without any effect upon the anaemia, the albuminuria, the headache, or the jerkings. After several weeks had passed in this condition, the patient directed my attention to a recent swelling on the front of his leg. I found a node upon the tibia, a few scurfy, copper-coloured spots upon the chest, and at once ordered iodide of potassium in large doses. The headache, albumen, jerkings, and node disappeared together, and within two months a healthy tint was observed on the face and lips. Two years have elapsed, and during that period his wife has become pregnant, he has been free from jerkings, has gained flesh, is now in good condition as to strength and colour, and there is no trace of albumen in the urine. This case is only one among many which illustrate the difference in action between bromide and iodide of potassium; but one which it seems to me to be important to quote, inasmuch as I have often heard the two medicines spoken of as being closely analogous, if not almost identical in their mode of operation.

Hysteric Convulsion has been, in my experience, but very slightly influenced by the bromide; and the same may be said with regard to hysteric spasms. The nearer that a case of hysteria approximates one of epilepsy, both in its general features and in the characters of its attacks, so much the greater has been the utility of the drug. Those cases, on the other hand, in which there has been no distinct convulsion, but only an assemblage of

so-called "hysterical symptoms," of which sundry spasmodic movements are often among the most striking, have appeared to me to be often utterly unaffected by even very large doses of bromide of potassium.

Chorea.—In this disease there are two classes of motor disturbance which may be readily distinguished; the one is clonic spasm, more or less intense and persistent, which may be seen while the patient makes no attempt at voluntary movement; the other is a want of "co-ordination" of muscular action, seen only when such attempts are made. In all choreic cases both elements co-exist; but in some the first, and in others the second predominates. Where the principal failure has been the want of co-ordination, bromide of potassium has appeared to me to be absolutely inert; where, on the contrary, there has been much clonic spasm, and but trifling disturbance of co-ordination, it has sometimes seemed that the spasms have been affected beneficially by the drug.

Chorea, however, speaking generally, has in my experience been uninfluenced by this medicine. It is one of those diseases which, as a rule, yields so readily to simple hygienic treatment, that no safe conclusion as to the value of a drug can be obtained unless the patient be placed in circumstances which exclude that source of fallacy. Again and again I have taken choreic patients into hospital, for the express purpose of observing the effects of bromine; but have always carefully abstained from giving any medicine until the results of good nursing, good feeding, and the position in a large and airy ward, could be distinctly recognised. It has invariably happened that all ordinary cases of chorea have begun to improve directly, and that they have recovered without any medicine; whereas in very severe cases, with or without complication, bromide of potassium has failed to exhibit the smallest remedial action.

In a marked case of congenital chorea, general in its distribution, and persistent for twenty-four years, the bromide was given in extremely large doses without producing any effects whatever except those of bromism. In another case of chorea, of three months' duration, the child being unable to sit up or to speak, improvement commenced at once upon admission into hospital; but it proceeded tardily for a fortnight. At the end

of that time bromide was given in full doses, but it appeared rather to retard than to expedite the process of recovery.

M. Gubler¹ relates cases which appear to show that chorea could be much relieved, and even rapidly cured, by bromine, but my own experience is that stated above.

Local Clonic Spasms.—I have given bromide of potassium in many cases of “spasmodic wry-neck,” of “writer’s cramp,” and of “histrionic spasm,” without observing that in any instance it afforded relief. In some there was temporary and trifling abatement of the spasm, but in all of these the symptoms returned to their original intensity, even while the drug was continued.

Persistent Tonic Spasm.—Bromide of potassium has, so far as I have seen, been utterly useless when administered in cases of this description.

Looking back then to the uses of this drug in the treatment of spasmodic affections, it would appear (1) that its efficacy is most marked when the malady is “paroxysmal;” (2) that its value is high in proportion as the disease approximates the type of convulsion known as “epileptic;” and (3) that when spasmodic movements are “habitual,” be they either tonic or clonic, local or general,—its remedial influence is, at best, extremely doubtful.

II. Passing now to another group of diseases, those marked by occasional disturbances, there are facts enough to prove that bromide of potassium is of great utility.

Vertigo sometimes occurs paroxysmally without the co-existence of any obvious spasm—without any obscuration of consciousness, any failure of muscular power, or anything indicative of coarse organic lesion of the brain. In such cases, even after many months and even years of duration, I have known immediate and permanent relief from the use of bromide of potassium. Such cases are probably, though not obviously, related to attacks of “epilepsy,” and they exhibit one feature of that disease in their amenability to the influence of this drug. It must, however, be remembered, that granting the epileptoid character of such affections, they are on that side of the malady which, as I

¹ L’Union Médicale, tome xxiv. p. 84; and in Bull. Gén. de Thérapeutique, 1864.

have already stated, is the least influenced by the medicine we are considering.

Headache of a paroxysmal character, and especially that which is accompanied by heat of head, and flushing of the face, is often relieved with much rapidity by the bromide.

Hyperæsthesia of the mucous membrane of the fauces, œsophagus, air-passages, and urethra, would appear to be reduced by large doses of the bromide of potassium; but for facts illustrating this mode of action the reader is referred to the papers of M. Voisin in the *Bulletin Gén. de Thérapeutique*, and of M. Gubler in *L'Union Médicale*. My own experience of its utility does not lead me to confirm the statements that have been made upon these points.

III. In the treatment of certain diseases affecting the cerebral centres in such manner as to prevent sleep, bromide of potassium has proved of great utility. Here it is necessary to give the drug in such large doses as thirty or forty grains, at the ordinary bed-time, and to repeat it frequently in smaller doses, of ten or fifteen grains, during the day.

In *Acute Mania*, and especially when there is much heat of head and redness of conjunctivæ, I have repeatedly seen refreshing sleep follow the administration of one full dose. The patient may not have recovered from his mania when he awakes, but he is calmer, and less exhausted; and after a few days of the treatment above suggested, is sometimes well. In other cases, however, I have found no good result from the exhibition of this medicine. In the wakefulness of *Melancholia*, bromide of potassium has often, in my experience, proved worse than useless. It has apparently aggravated the feeling of distress. Not so, however, in all cases; I have known it to be eagerly sought for by the patient's friends as the one thing that seemed to give relief.

It holds a similarly doubtful position in regard of *Hypochondriasis*, having utterly failed to afford any relief in some cases, and having been highly prized by other patients. In both of these maladies it does but palliate symptoms. It must be remembered, however, that to relieve "symptoms" in the latter affection—hypochondriasis—is almost tantamount to cure.

Acute Alcoholism, with *insomnia*, is often most beneficially treated by this medicine. It frequently induces sleep when opium has failed to do so; and there is no prejudicial effect produced by it upon the processes of secretion or excretion.

IV. There is yet another class of affections, to which I can make but a passing allusion here, viz. *disturbances of the vaso-motor system* in other parts of the body than the head; and over these bromide of potassium exercises a most valuable control. When such derangements take place within the skull their symptoms are those already described as epilepsy, epileptoid seizures, vertigo, and the like. But throughout the body, changes, analogous to those in the cerebral circulation, may occur; and the symptoms by which they display themselves differ with the regions affected. Such symptoms are, for example, sudden numbness, coldness, deadness, or pricking sensations in one or more limbs; sudden, distressing, but indefinable feelings in the epigastrium, abdomen, or hypogastrium; or sensations akin to rigor, with much "anxiety," and palpitation or "fluttering" of the heart. In such cases it may be observed that the local circulation is interfered with; that, for example, the pulse in one arm becomes faltering, irregular in force and rhythm, occasionally intermitting, while that in the other arm may remain unaltered, and the beat of the heart may maintain its normal character. These phenomena have now been observed by myself in a large number of cases, and I am quite sure that many of the symptoms mentioned, which have often been referred to some changes in the nervous centres,—i.e. to either the brain, or spinal cord,—are in reality due to the condition I have mentioned, viz. a derangement of the local circulation in consequence of a morbid state of the vaso-motor system of nerves. Nothing can far exceed the misery which some of these symptoms occasion; they often persist for years, or rather, occur paroxysmally for years, without finding any distinct or permanent relief from ordinary treatment of head, spine, and heart. They may, however, be diminished and entirely removed by the use of bromide of potassium, in such moderate doses as ten or five grains, taken twice or three times daily.

V. As to the *mode of action* of bromide of potassium we are not yet in a position to speak with certainty. Of these negations, however, there is abundant proof—1st. That it does not lessen the force or frequency of the normal pulse. Upon this point I have made many scores of observations, and have failed to find any exception to the rule stated, when the dose has been such as to produce only therapeutic effects. 2dly. The sphygmographic tracing of the pulse is perfectly normal in patients who have taken bromide in large doses for many months; and I have found it unchanged in the healthy adult by a dose of forty grains. 3dly. The temperature of the body has not under similar circumstances been reduced below the normal standard; but in some cases, where the medicine has been administered to those in whom there was slight pyrexia, a diminution of the abnormal temperature has been observed. 4thly. That bromide of potassium does not, in therapeutic doses, affect notably any of the secretions. Occasionally the amount of urinary water appears to be augmented, but there is no constancy in this result. 5thly. That it does not interfere with the reproductive functions of either sex.

The facts that I have witnessed would lead me to infer that the specific action of bromide of potassium is exercised upon the system of vaso-motor nerves, and that it acts upon that system as a “sedative,”—*i.e.* that it reduces such morbid activity as would lead to the spasmodic narrowing of vessels, and the consequent induction of irregularity in the supply of blood. Contraction of the vessels forms by far the most important link in the chain of causes and effects in epilepsy and all allied diseases; it is obviously present in the class of cases to which I have referred in Section IV.; it is to be observed in those alluded to in Section III.; and it may be frequently recognised in those disturbances of sensation which were included in Section II. Moreover, it is quite clear that vascular contraction in one locality may be accompanied by, even if it does not cause, fulness of vessels in other situations, and that the symptoms most obvious to the patient may be those dependent upon the latter change. Thus heat of head, and oppressive headache, are often found to co-exist with shivering, and cold extremities. In such cases bromide of potassium may relieve, by controlling

spasm of the vessels, and thus restoring the equilibrium of health. All theories, however, on the action of this drug are, at present, but of trifling value compared with that of the facts which demonstrate its practical utility.

VI. *Bromism* is induced in very rare cases by moderate doses; in a larger number of cases by the administration of the drug in great quantities. Its symptoms are,—acne on the face, redness of the palate, epigastric heat, cedema of the mucous membrane of the mouth, and salivation, or bronchial catarrh; heaviness, drowsiness, and confusion of ideas, with irritability of temper and weakness of muscles; there is occasionally an ataxic gait, like that of commencing alcoholism. All these symptoms speedily disappear on the discontinuance of the drug.

Enough has been said to show that in the introduction of this comparatively new therapeutic agent into our Pharmacopœia, the profession and the public have received a great boon, inasmuch as they have met with a medicine, which, while absolutely devoid of all danger in its exhibition, yet exerts a most beneficial control over a large class of diseases confessedly among the most obscure and most obstinate of the ills to which humanity is subject.

FARADISATION IN THE TREATMENT OF PARALYSIS.

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THE use of electricity as a therapeutical agent, and in pathological investigations by English medical practitioners, lags much behind the knowledge acquired of its diagnostic and remedial value. This arises less perhaps from any disposition to under-rate the worth of the agent in medicine than from certain errors of manipulation in its application to the diagnosis and treatment of disease. Such want of confidence in its merits as exists depends largely, and is a necessary consequence of the erroneous mode of application referred to. For an imperfect method leads to imperfect results, or no results at all, and to a distrust of the agent employed. I propose in the present paper briefly to indicate the mode of applying induced electricity to the investigation and treatment of paralytic affections which has been found by experience to be most trustworthy.

It may be premised that three forms of electricity are used in medicine; namely, (1) electricity produced by friction (*frictional* or *static electricity*); (2) electricity produced by chemical action (the *electricity of contact* of some writers, *voltaic*, *galvanic*, or *dynamic electricity*, *galvanism*); and (3) electricity produced by the action of a permanent magnet or voltaic electrical current under certain conditions (*induced electricity*). The latter form of electricity (the *induced*) was discovered by Faraday, and Duchenne (de Boulogne), who has been aptly designated "the father of electro-therapeutics," proposed to name it, after

the discoverer, *faradic electricity* (more correctly *faradaic*) or *faradism*, following the nomenclature adopted in respect of the galvanic form, *e.g. galvanism*; and the mode of therapeutical application of the induced current he termed *faradisation*. Duchenne further distinguished the method of application in medicine of the other forms of electricity, as *galvanism* and *static electrification*. The convenience of this terminology is very great, but the nomenclature adopted is open to objection. Duchenne has made use of the word *electrification* as the generic term for the application of electricity in therapeutics, and the use of the word sometimes in a general, sometimes in a special and limited sense, is apt to confuse. The term *galvanisation* is also objectionable, for the designation *galvanism*, from which it is derived, is not so accurate as is to be desired, and it is liable to be very loosely used.

It seems to me that it would be an advantage to have a series of terms which, while securing the object which Duchenne had in view, would be free from the objections referred to. The electricity of chemical action is more correctly and generally designated, after the name of the original discoverer, Volta, *voltaiic electricity*. Faraday suggested that frictional electricity should be termed after the illustrious philosopher, Franklin, whose name is especially connected with its early experimental study, *franklinic electricity*, and the name is now being widely adopted by physicists.¹ By applying the method of terminology which Duchenne has so happily used in respect of the induced current to the other forms of electricity, a series of terms is obtained which would be accurate in form as the practice of nomenclature goes, true to science in fact, free from confusion, and particularly convenient in usage. The series would be, (1) *faradaic electricity*, or *faradism*, and, as respects the pathological and therapeutical application of the agency, *faradisation*: (2) *voltaiic electricity* or *voltaiism*; *voltaiisation*: (3) *franklinic electricity* or *franklinism*; *franklinisation*.

Faradisation.—A faradaic apparatus, of one kind or another, when the diagnostic and therapeutic value of faradisation are

¹ See, for example, Brooke, "Elements of Natural Philosophy" (one of Mr. Churchill's Manuals). To this work I would refer for the most recent and comprehensive account of the phenomena of electricity.

more widely understood, will become as necessary a part of the practitioner's armament as a stethoscope, or an ophthalmoscope, an otoscope, or a laryngoscope. By the aid of such an apparatus certain special peculiarities of several forms of paralysis, a knowledge of which is essential to the proper treatment of the diseased state, can alone be detected. To the right use of faradisation it is necessary that an instrument should possess certain fundamental requisites. These are :—a sufficient range of power, so as to bring at once, and when properly applied, the largest muscles into full and energetic contraction ; easiness and a certain niceness of graduation ; and immediate readiness for action, and capability of being placed out of action without involving trouble and loss of time. The form of apparatus which is excited by a permanent magnet (*magneto-faradaic*) possesses the first and last of these requisites, but, except in the more elaborate instruments, is deficient in the second ; but the facility of use of a magneto-faradaic apparatus is greatly impeded by the need of a second person to work it. The form of apparatus which is excited by a voltaic cell (*volta-faradaic*), as ordinarily made, possesses the first and second of the requisites named, but is seriously defective in the third. A volta-faradaic apparatus has, however, been constructed by Stöhrer, of Dresden, which possesses to the fullest extent even the last-named requisite, and which is unquestionably the best and most efficient apparatus for medical purposes yet constructed. This apparatus possesses not only the fundamental requisites which have been enumerated, but also the principal refinements which give an apparatus additional value.

The chief peculiarity of Stöhrer's volta-faradaic, or, as he terms it, induction apparatus, consists in the arrangement of the cell. The elements are formed by a hollow cylinder of carbon, surrounded by a cylinder of amalgamated zinc. The hollow of the carbon is partly filled with fine glass sand, charged with from fifteen to twenty drops of a saturated solution of chromic acid. Both elements dip into a glass jar containing diluted sulphuric acid (one part of the acid to six of water). This jar is moveable, and it can be raised so as to immerse the elements, or dropped so as to leave them free from the acid. By this ingenious arrangement, the apparatus can be brought into or

put out of action at a moment's notice ; and there is this that is remarkable about the combination of elements, that even with frequent daily use they retain their power, and act well for from six to eight weeks, and with care for even a longer period. Moreover, when the action is exhausted, the re-analgamation of the zinc and re-charging of the cells are barely a quarter of an hour's work. The induction coils do not differ from those of other well-made volta-faradaic apparatus, except in the mode

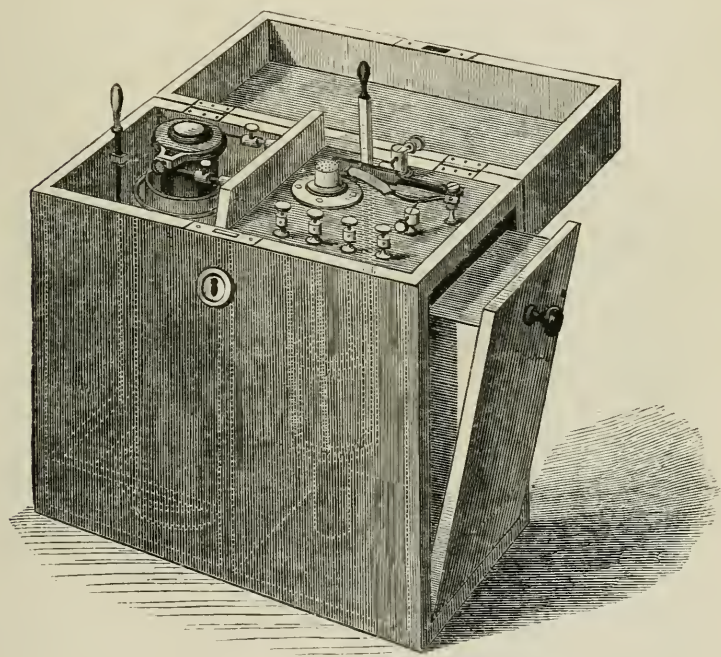


FIG. 1.—Stöhrer's smaller Volta-Faradaic Apparatus.

of packing, and certain elaborations of accessories. Stöhrer makes two kinds of volta-faradaic apparatus, a larger and a smaller (Figs. 1 and 2). Both are excellent instruments, and both are portable, but the larger is by far the best and most complete.¹

¹ The agent for the sale of Stöhrer's volta-faradaic apparatus in England is Mr. Pratt, of 420, Oxford Street, London.

The currents derived from both the magneto-faradaic and volta-faradaic apparatus produce the same physiological effects when transmitted through a part of the human frame. They equally excite the sensitiveness of the sensitive nerves lying in their track, as shown by pain or other modifications of sensation, and bring into action the contractility of the muscles. These physiological phenomena lie at the root of the therapeutical uses of faradisation, and medicine is indebted to Duchenne (de

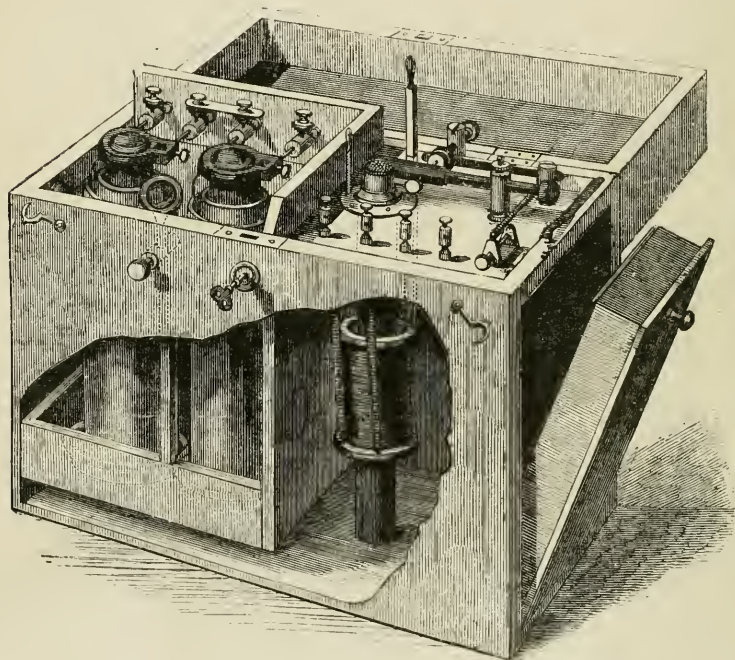
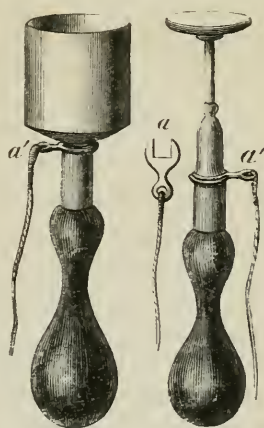


FIG. 2.—Stöhrer's larger Volta-Faradaic Apparatus.

Boulogne) for first showing in what manner they may be best elicited and applied in the treatment of disease. He has shown that when metallic conductors are used, according as they are applied to the surface of the body uncovered and dry, or tipped with layers of moistened leather or sponge, the electrical current may be limited to the skin and tissues immediately subjacent, or made to pass to the deeper-seated structures, and localised in definite muscles or groups of muscles. This constitutes what

Duchenne has termed *localised electrification*. By this method it is practicable to determine easily and accurately, in the living, healthy subject, the action of the different muscles which can be reached by the electrical current; and this is what Duchenne has done in his two remarkable works, "*Mécanisme de la Physionomie Humaine*" (Paris: 1862), and "*Physiologie des Mouvements*" (Paris: 1867). By this method the state of motility of paralysed muscle can alone be determined in reference to the therapeutical application of electricity, and that application effectively carried out.

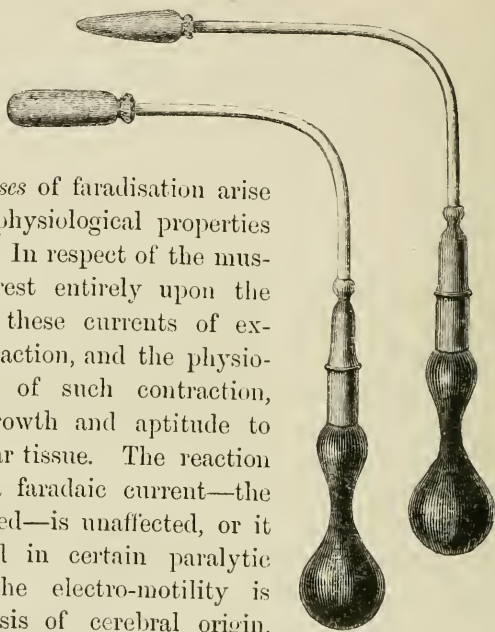
As regards the muscles, the method may be employed either *directly* or *indirectly*, that is to say, in the former case by applying the conductors directly over the belly of the muscle; in the latter, by acting upon its motor nerve when accessible. The direct method is that chiefly followed by Duchenne. He uses as conductors (or rather directors) instruments of the form shown in the accompanying figures (Figs. 3, 4, 5, 6). These include a pair of sponge-holders (Fig. 3) for directing the current upon the larger muscles; a pair of button-headed directors (Fig. 4) covered with several layers of leather for localising the currents on smaller muscles; and an olive-shaped (Fig. 5) and a conical (Fig. 6) director, the heads also sheathed with leather, for localising the currents on the individual muscles of the face. In addition, he uses a brush of fine wire (Fig. 7) for localising the current in the skin. The form of the handles is such as to permit each pair of directors being manipulated by one hand so as to leave the other free (Fig. 8). The directors are connected with the volta-faradaic apparatus by very flexible wires covered with silk, or cotton, or india-rubber. The wires are best attached to the directors by the mechanism shown in Figs. 3 and 4 (*a, a'*). Before being used, the sponges or leather coverings are saturated with warm water in which a little salt has been dissolved. For



therapeutical purposes, each muscle, or group of muscles, should be acted upon for about thirty seconds at a time, with intervals of a few seconds, and the whole period of application should extend from ten to twenty minutes as a rule.

The *therapeutical uses* of faradisation arise directly out of the physiological properties of faradaic currents. In respect of the muscular system, they rest entirely upon the power possessed by these currents of exciting muscular contraction, and the physiological consequences of such contraction, namely, increased growth and aptitude to action of the muscular tissue. The reaction of muscles against a faradaic current—the *electro-motility* so called—is unaffected, or it is variously modified in certain paralytic affections. When the electro-motility is normal, as in paralysis of cerebral origin, faradisation cannot make the contractility of the muscles more normal; and, as a rule, it is useless. When the electro-motility is diminished or exhausted, as in certain forms

of spinal and local paralysis, faradisation may reinvigorate or recall the defective or lost motility. The broad rule for the application of faradisation in the treatment of paralysed muscles is, indeed, this:—*when the electro-motility is diminished or exhausted, then faradisation will be of service; when the electro-motility is unaffected it will not prove of any use.* The question then, of the use or not of faradisation in a given case of paralysis, involves a primary question of diagnosis; and this diagnosis is altogether special, and can be determined only by the systematic examination of the affected muscles. Such an examination, excepting only in the ordinary forms of paralysis of cerebral origin, should be made in every case. The examination, however, it is to be repeated, must be of individual muscles,



FIGS. 5, 6.

Duchenne's Directors
(Rheophores): half-size.

for, in the forms of paralysis in which faradisation proves most beneficial, not all the muscles of an affected limb may be equally paralysed, and some may be unaffected while the motility of others is seriously damaged. To faradise equally the affected and the unaffected muscles—those muscles which are slightly and those which are much injured,—would be to do harm rather than good, and at the best would be a haphazard practice. The condition of muscle in which faradisation is found chiefly beneficial most commonly exists in paralysis following certain lesions of the substance of the spinal cord, the paralysis of infancy, and local palsies arising from injury of a nerve, or which are classed as rheumatic palsies. If, however, the practitioner follows the rule of guidance given above, he will have no difficulty in any given case of determining whether faradisation is needed or not in its treatment. The chief caution to be borne in mind is that in cases of centric origin *faradisation should not be had recourse to—or, indeed, any method of electrification—so long as active mischief exists.*

Space does not permit me to do more than refer to the faradisation of the muscular tissues of particular organs, as of the bladder, the rectum, the uterus, the eyes, and the larynx, when the contractility of those tissues is impaired.

There are certain forms of *quasi*-paralysis in which the electro-motility is intact, in which faradisation is of much benefit, although not so certainly or so surely as in cases of paralysis in which the electro-motility is impaired. The *quasi*-paralytic affections referred to are the so-called *wasting* palsy (progressive muscular atrophy) and local atrophy of muscles. In these cases,



FIG. 7.
Faradaic Brush
(or "Whip").

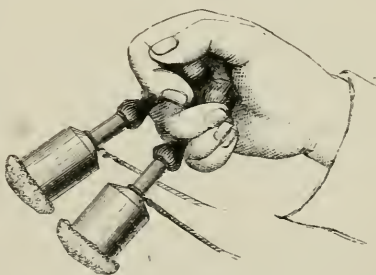


FIG. 8.
Mode of holding Duchenne's Directors.

the paralysis of movement depends upon the loss of muscular tissue, that which remains acting normally under the faradaic contact, and as a rule responding to the volition. In some of these cases faradisation is an invaluable remedy, staying the onward progress of the wasting, and promoting the growth of the affected muscles.

As regards the *nervous system*, the most marked use of faradisation is in cases of local anæsthesia, particularly the local anæsthesia apt to occur in hysteria. In such cases the application of the electrical brush, or "whip," as some writers term it, is of great value.

The use of faradisation in certain perverted states of nervous and muscular action (neuralgia and spasm) is governed by general therapeutical principles rather than by any special remedial indication.

For a detailed account of the pathological and clinical conditions in which faradisation is useful either for the purposes of diagnosis or treatment, I must refer to the great work on "Localised Electrification," by Duchenne (de Boulogne.)

NOTE.—The wood-blocks from which the engravings are printed in this paper have been courteously lent for the purpose by Mr. Robert Hardwicke, of 192, Piccadilly. They form a part of the illustrations prepared for a translation, which will shortly be published by that gentleman, of the treatise on "Localised Electrification, and its application to Pathology and Therapeutics," by Dr. Duchenne (de Boulogne), referred to in the text. The instruments described in this paper, I may add, are those in use at the National Hospital for the Paralysed and Epileptic, 24, Queen Square, Bloomsbury. The electrical room at this hospital is at all times open to members of the profession.

ON THE EMPLOYMENT OF GLYCERINE OF TANNIN.

BY SIDNEY RINGER, M.D.

Professor of Therapeutics in University College.

THE writer is induced to make a few remarks on the employment of this preparation of tannin, as it appears to be but little known, and of course but little used, while, in his opinion, it proves of great service in many diseases. He thinks it will be found of great use in ozaena. It not uncommonly happens after measles, or scarlet fever, or other diseases, for the inside of the nose to be excoriated, rather reddened, and to discharge freely a thin sanious, or thicker purulent fluid, which latter, on drying, blocks and scabs up the orifices of the nose; while, often at the same time, from the irritation of the discharge, the upper lip is covered with eczema. If the inside of the nose be well brushed out with glycerine of tannin, the discharge of either kind ceases, often, indeed, after a single application, and the parts heal and become natural again. If the scabs be thick and the orifices blocked up, these crusts must be thoroughly removed, so that the excoriated surface is left bare, which permits the preparation of glycerine to come well in contact with the sore secreting surface.

The obstruction which so generally occurs in the nose of syphilitic children, and which causes in them the characteristic snuffling, may be removed by this treatment. After the application the child breathes much freer through the nose, and then can take the breast much more easily. For while the nose is blocked up the child cannot suck and at the same time take air into the lungs through the mouth, and so it constantly

happens with syphilitic children that they cannot suck properly, in consequence of which they waste away.

Patients constantly apply for relief, who suffer from a chronic discharge from the nose of a thick, lumpy, greenish-black matter, which may continue for years, and which not unfrequently has a most disagreeable smell. Such chronic discharges can very generally be speedily removed by this application ; and even if it continues in spite of this treatment, the offensiveness of the smell is always destroyed. It is necessary that the cavity of the nose should be thoroughly washed out with the preparation.

The treatment is sometimes successful where alum and other injections and washes have failed to affect the disease.

The thin sanious or purulent discharge from the ears so commonly met with in weak, unhealthy children, especially after they have suffered from a severe illness, can be stopped at once by filling up the external meatus with this liquid preparation of tannin. Usually one application is sufficient, but a slight discharge may remain, or it may return again in a few weeks, when it can be again removed by a fresh recourse to the glycerine of tannin. If there be acute inflammation of the meatus, it need scarcely be said this treatment is inapplicable until the acute affection has subsided and become chronic. The chronic vaginitis of children, with thick purulent discharge, can often be at once arrested, by painting the affected parts with this application ; it, however, not unfrequently proves more obstinate than either of the previously mentioned diseases.

This preparation is also of very great use in many cases of eczema. It is of service only in the earlier stages of the disease. Thus, when the skin is inflamed, red, swollen, and weeping, if the scabs be thoroughly removed, and the raw surface be painted over with this preparation of tannin, the discharge is stayed, the redness, heat, and swelling much lessened or removed, and the appearance of the parts much improved. When in a less active condition, and when the tissues are less red, swollen, and weeping, the eczema may more profitably be treated in the same way. The tissues assume a much healthier appearance, and after a few applications look like a healthy, healing sore. A poultice may be usefully applied at night, and this glycerine

of tannin twice or three times in the day. All the advantages which accrue from its employment in this disease have not yet been mentioned, for the troublesome itching, and tingling, and burning so common in eczema, are at once removed by this application, and thus the tearing with the nails and rubbing with the hands which prevents the healing of the sore, and causes it even to spread, is prevented, and the comfort and well-doing of the patient much promoted, as the itching and feeling of burning often greatly break the sleep. Sometimes the glycerine of tannin does not, of itself, quite remove the disease, but brings it to the stage where there is only a little desquamation, with a tendency to crack and ooze. It may be necessary in such case to perfect the cure by a resort to tar or carbolic acid ointment. It need not be said that some cases prove incurable by this as by all other treatment. Impetigo may be beneficially treated in the same way. The scabs should be removed by a poultice applied each night, while this tannin preparation is employed during the day. In the treatment of these diseases of the skin by this application, the state of the digestive organs must not be overlooked, but anything wrong with them should, if possible, be removed.

The eczema which occurs behind the ears of children, and is often limited to these places, is most admirably treated with the remedy. It almost always dries up and heals after one or two applications, even when it has lasted for weeks or months. The gums, if red and swollen, should be lanced, or other irritations removed. Intertrigo of children may also be treated in this way.

It is an extremely useful application to the throat for a variety of purposes. It may be employed with great benefit to the throat when an acute inflammation has just subsided, as the mucous membrane becomes less red, less swollen, and moister, and is covered with mucus or pus. If the glycerine of tannin be then painted on the pharynx, &c. the recovery to their natural state is much hastened, and the chronic inflammation, with a relaxed condition of the mucous membrane, which sometimes follows the acute disease, is prevented. The superficial ulceration which may occur just as the acute conditions are subsiding, may be speedily healed by this application.

In chronic inflammation of the throat, when the mucous membrane is relaxed, moist, and granular-looking, or bathed with mucus or pus, the tissues may be speedily braced up, and these conditions removed, by a few applications of the preparation of which we are speaking, while the hoarseness which may accompany it is at the same time much lessened or removed. Such a throat is commonly met with in children, and is a cause in them of a frequent hacking cough, which may keep them awake for the greater part of the night. A speedy way to cure such a cough is to wash the throat with this astringent application.

Such a state of throat frequently causes slight deafness, a circumstance very common with children, and which may be removed with the chronic inflammation of the pharynx, by the employment of the glycerine of tannin.

It is well known that coughs are often dependent on the state of the throat. But while in theory this fact is very generally accepted, in practice it is very little applied.

In phthisis a frequent hacking cough is often dependent on the state of the throat, and can be allayed by this application. A good night's rest may be obtained by applying the paint just before going to sleep. A small quantity of morphia added to the glycerine of tannin still further increases its soothing sedative power on the throat. The paroxysms of hooping cough may be most considerably lessened in frequency and violence by well sponging out the pharynx with this application; it should be carried low down, and be brought well in contact with the epiglottis and the neighbouring parts.

Its employment will be followed by no good results if the case be complicated with catarrh or other inflammation of the lung, or if there be present tuberculosis or other condition causing fever, or any irritation, as of teething. But in simple uncomplicated hooping cough this application may be used with decided advantage. The paroxysmal cough which is often left behind by hooping cough, or which speedily returns on exposure to cold, may be well treated in this way.

This application has the further advantage of causing no pain, and of not possessing a bad taste. It may be thought an apology is needed for occupying valuable space with the treat-

ment of such trivial complaints. To this it may be answered, they are very common, often very obstinate, and many of them very unsightly.

The writer believes no apology will be considered necessary by those who give the application a fair trial in the purposes for which it is recommended.

THE HYPODERMIC INJECTION OF REMEDIES.

BY DR. ANSTIE.

TEN years' experience of the subcutaneous administration of medicines has convinced me of the satisfactory working of the method, and of the greatly increased power in handling remedies which it gives us. I conclude, however, that it is still very much unappreciated; for I not unfrequently meet practitioners who will not admit that there *can* be any particular advantage in it which the old way of giving medicines does not offer, and who are, moreover, possessed with a great dread of the dangers which they think it must involve. It may, therefore, be useful to sum up my experience, since, on the one hand, subcutaneous injection is not an invention or hobby of my own, for which I might feel an undue bias; and, on the other hand, I have used it very extensively, and tested its value in almost every possible way.

And first, as to the question of *danger*, let me say, positively, that there is *absolutely none* if the injector will remember two cautions:—first, that the physiological activity of nearly every substance which can be thus used is *three if not four times greater when it is given by the skin than when it is swallowed*; and secondly, that the liquid injected must not be either markedly acid, nor markedly alkaline, nor in any way obviously *irritant to tissue*.¹ The only case of serious inconvenience which has occurred among the hundreds of injections I have made was

¹ These precautions are stated in the valuable Report of the Committee of the Medico-Chirurgical Society (Trans. vol. I. 1867), which, from its not being universally accessible, has too much escaped attention.

the formation of a small abscess in the cellular tissue of a gentleman in whom I injected *chloroform*, an agent entirely unfit to be used in this way, as I am now aware.

The advantages of the hypodermic over the gastric administration are these :—1. Economy of the drug. 2. Entire abolition of the depressing or irritant effects which are locally produced in the alimentary canal during the *digestion* of various remedies. 3. Far greater *permanence of effect*, in many cases, than can be produced by medicine swallowed. 4. Much greater rapidity of action—a quality which makes injected remedies of priceless value in certain emergencies. One most important conclusion from these facts is this : *that anodynes and hypnotics ought never to be administered by the mouth in acute disease attended with anorexia*. The practical importance of this principle is immense. Regular and systematic nutrition is the great necessity and the great difficulty in these diseases, and the avoidance of any treatment tending to interfere with digestion of simple food is a cardinal duty.

I shall first say a few words as to the operation of hypodermic injection, and then say a little about particular drugs.

The three kinds of syringe recommended by the Medico-Chirurgical Society's Committee (namely, Coxeter's, Whicker and Blaise's, and Weiss's) are each of them sufficient and good. The ideal syringe perhaps is a Coxeter, with the addition of a screw-joint by which the barrel can be removed and refilled without withdrawing the canula from the skin. Such an instrument is so cheap as well as handy that the surgeon can afford to have two, in case of breakages : and breakage does not inflict very large expense. A country doctor should never start on his rounds without a syringe and a bottle of morphia solution, such as will be described presently. He should have one or two steel canulas, besides the gold ones ordinarily used ; these are useful to penetrate tough skin, especially skin which has been frozen with ether spray, a necessary preliminary with some sensitive patients.

The best *mode* of making the injection is that described by Mr. Charles Hunter, to whom we owe so much of our knowledge of the subject, viz. to pick up a fold of loose skin and push the canula right through till its point works loosely in the subdermic cellular space ; then inject slowly with two or three

pauses of a second or two; wait one minute, and then withdraw the canula slowly, pressing firmly with the finger on the track and keeping it applied to the puncture for a minute or two. It is a mistake to apply plaster (except in the rare instances where a large quantity of fluid has to be injected), for it leaves an ugly mark on the skin for some days. However, it is not always possible to find a convenient loose fold of skin, and in this case another plan must be adopted. The skin must be strained to one side with the thumb, and the canula run in with a steady pressure; the disadvantage of this procedure is that it is rather more painful, and that we are not sure of getting into the subcutaneous cellular tissue: failing this, it is rather more difficult to get the fluid in; the injection must be more slowly performed, and it may be necessary to apply plaster to prevent its escape. Otherwise, injection into the dermis favours instead of opposing the absorption of the fluid, as there are a much larger number of absorbent vessels in this situation. If the patient be very sensitive, it will be well to freeze the skin beforehand, with ether spray; a plan first suggested to me by Mr. Hart. It is convenient in that case to adopt a plan which Dr. Lawson devised,—namely, to perform the local etherization gently, thereby causing, not a dead whiteness of the skin, with crystallization of the tissue, but merely depositing a thin layer of ice on the surface; this produces quite enough anæsthesia, and does not make the puncture so difficult as it is when the skin is frozen hard.

As to the *locality* to be selected for the injection, it is still impossible to lay down precise rules, but we know a good deal more than we did a few years ago. When the object is simply to procure sleep, to quiet general convulsion, or to inoculate the whole system with a constitutional remedy (*e.g.* quinine in ague), it is only necessary to find a spot where absorption is likely to be free; and we have thus a choice between many places. The skin near almost any large joint, when the joint is flexed, will generally offer a convenient loose fold: but, as already explained, loose skin is not necessary.

If the object, however, be to relieve *local* pain or spasm, it becomes a question whether, or in what cases, the injection must be applied to the painful part. On this subject the contradictory

nature of the statements of different authors is remarkable. The first applications of the hypodermic method, by Dr. Alexander Wood, were local; but four years later (1859) Mr. Charles Hunter laid down the opposite principle of injection at an indifferent spot, maintaining that it made no difference in the rapidity and certainty of the effect, and that the painful locality was often inconvenient. But Professor Béhier, who is one of the best and most accurate of foreign observers, very shortly afterwards read (before the Academy of Medicine) the report of fifty-three cases of neuralgic and other pains, in all of which either cure or notable improvement had been effected by *local* injection of atropine, and at the same time stated that he had repeatedly endeavoured to verify Mr. Hunter's statements, but had found injection at an indifferent spot altogether ineffective. Eulenburg, a writer of the highest merit, in a most learned and comprehensive treatise (*Die hypodermatische Injection der Arzneimitteln*: Berlin, 1865), speaks strongly of the superiority of injection performed as near as possible to the painful point. He gives, in support of this opinion, a general reference to a large number of cases of his own, and makes particular mention of an instance of double *rheumatic* sciatica (I shall have something to say presently as to the exceptional position of such cases), in which local injection near a painful nerve produced a very much more decided and lasting relief of the pain on that side than on the other. Eulenburg relates some special experiments (made by him with an *æsthesiometer*) in order to show that *tactile sensibility* is far more affected at the place of injection, in the case of hypodermic administration of narcotics, than at a corresponding point on the opposite side. He shows that injection of a narcotic at a point where a nerve trunk becomes superficial, will paralyse, more or less, tactile sensibility in all its branches below this point. And he quotes Rynd, Semeleder, and Von Graefe, who are distinctly in favour of the plan of injecting near to the painful spot. With such a conflict between high authorities it may be pardonable to form one's own opinion; and I must say that a large experience has led me to concur in Mr. Hunter's view of the matter, with certain modifications which do not affect his main principle. I believe that for the purpose of relieving local pain, or cramp in a muscle, injection

at any indifferent spot (which provides the requisites above mentioned) will do everything that is required, except in a limited number of cases. These exceptional instances are those in which the neuralgia is of old standing, and there has been a marked development of very painful points, with perhaps tissue changes as a secondary result. It especially includes also those cases in which neuralgia is a secondary result of rheumatic affections of the nerve sheath: the case of double sciatica above quoted from Eulenburg comes under this category.

As for the argument which has been urged for the use of local injection—that tactile sensibility is paralysed in the skin near the point of injection—I must demur to its validity altogether. There is no need to produce any such anæsthesia of perceptive sensation, nor is it in itself desirable; on the contrary, it is a condition which very frequently, if not constantly, accompanies neuralgia itself, and is then apparently produced by the same causes which produce the active pain. I therefore consider that the observations of Eulenburg rather tend to refute than to support his views. And it is impossible to allow that in the case of neuralgia of an internal viscus, injection of morphia, &c. under the skin of the surface opposite the painful organ can be called a *local* injection. The two cases, therefore, of gastralgia which Eulenburg relates, in which injection of morphia in the epigastrium produced rapid relief of the pains, are all in favour of the efficacy of injection at an indifferent point. And certainly my own experience of the treatment of ovarian, cardiac, and gastric neuralgia speaks unequivocally to the effect that injection of anodynes beneath the skin of the front of the arm produces a relief of pain quite as rapid and complete as I have ever seen from the most carefully localized injections near to a painful superficial nerve. On the whole, the conclusion which I come to is this, that when the painful part is a convenient place for injection, it is as well to perform it locally; and that in rheumatic and other cases in which, from thickening of tissues round the nerve, the process of absorption is slow, it is desirable to do this even at considerable inconvenience, since the local effect is probably considerable; but that in the vast majority of cases it is absolutely indifferent, as regards the effect on the pain, where we inject, provided we select a favourable place for

absorption, and that in these cases it will be desirable to vary the place of injection each time, in order to avoid local irritation and thickening.

And now with regard to the drugs that can be used. Those which I have myself employed are opium, morphia,* and codeia, atropine and its sulphate,* veratrine,* caffeine,* camphor,* Indian hemp,* strychnine,* aconitine, as hypnotics or anodynes; quinine* both as anodyne and antiperiodic; podophyllin as a purgative; prussic acid* as a calmative in vomiting; corrosive sublimate* in congenital syphilis; arsenic* and atropine* as anti-spasmodics. Besides this, woorara and nicotine have been successfully used by others for tetanus; conia for asthma and angina; digitalis for various febrile conditions; tartar emetic as an emetic, &c. Among those which are mentioned as having been employed by myself, all those marked with an asterisk have been found useful; the rest proved either inert or superfluous. As it would be quite impossible here to detail the results of all these experiments, I shall confine my remarks to two drugs which are comparatively well known, and two other drugs which are very little known, but will probably prove most important, as hypodermic medicines. The first two are morphia and atropine, the others strychnine and caffeine.

1. Morphia should be used in the form of acetate, dissolved with a minimum of acetic acid in hot distilled water, five grains to the drachm. As the salt varies in solubility it will often happen that on cooling the solution will solidify: this is not of much consequence, as it can be heated in hot water at the moment of use. Ten grains to the drachm can easily be dissolved by the use of *glycerine*; but in the first place (according to my experience of the doses which are most useful) this is needlessly strong for any but quite exceptional cases; and secondly, an important question has suggested itself to Dr. Lawson, which I have not yet had time to settle decisively, whether the influence of glycerine does not diminish the physiological activity of morphia salts. I confess that I have grave suspicions on the matter; and meantime the five-grain preparation answers extremely well. One minim of this will represent one-twelfth of a grain, a very useful minimum dose in cases of slight neuralgic pain. Two minims ($\frac{1}{8}$ grain) is the best commencing

dose for the relief of severe pain, and as a hypnotic in states of nervous irritability. Three minims (or $\frac{1}{4}$ grain) is an *unsafe dose to commence with*: dangerous and even fatal results have been known to follow its use. It should not be given till smaller doses have been tried. It can rarely be advisable to increase the dose above six minims ($\frac{1}{2}$ grain) except in the case of persons habituated to indulgence in opiates.

The advantages of the hypodermic injection of morphia over its administration by the mouth are immense. The salt, used in this manner, is at least three times as powerful, for every therapeutic purpose, as when swallowed; and, meantime, the majority of the unpleasant symptoms which opiates can produce are entirely absent. The fact seems to be, that in the gastric digestion of morphia much of the salt becomes decomposed, and its specific effect on the blood is lost; but during the digestive process it acts depressingly upon the gastric nerves, and *pro tanto* disorders the functions of the stomach. In acute diseases, and especially in delirium tremens, we ought never to give opiates by the mouth when subcutaneous injection of morphia is possible.

The advantages of morphia hypodermically administered over opiate medication by the stomach are such as would be *à priori* incredible, nor can they as yet be fully explained. In particular, it is impossible to account for the far greater *permanence* of its action in relieving nerve-pain, which is so marked as that its discovery has initiated quite a new era in the treatment of severe neuralgias. Affections of this kind, which under any of the older plans of treatment would at least have been very tedious, are sometimes cured after three or four injections of $\frac{1}{8}$ grain each; and very many yield after a week or ten days of such injections, repeated twice daily. Even the inveterate and incurable "epileptiform" facial tic may be so benefited, that life, from being a horrible and intolerable burden, may become, not cheerful indeed, but comparatively peaceful and calm. Moreover, it is certainly the fact that there is far less tendency with hypodermic than with gastric medication to rapid and large increase of the dose, when morphia is used for a long time together. And the "antiphlogistic" virtues which have been ascribed to opium would certainly, if ever,

appear to be verified by the effect of hypodermic injections of morphia in threatening pericarditis, pleurisy, &c.

2. Atropine is an extremely valuable hypodermic agent for the relief of local pain and spasm. It should be employed in the form of solution of the sulphate: four minims containing $\frac{1}{60}$ grain; two minims will be the proper commencing dose in adults, unless the pain to be relieved is very severe. It should be cautiously increased to $\frac{1}{60}$ or $\frac{1}{30}$ grain; more can seldom be needed, and very uncomfortable poisonous effects may easily be produced if it be pushed to higher doses. *Apropos* of dosage, it is a positive duty here to notice one of the most astounding blunders ever committed by an eminent teacher—a blunder by no less a man than M. Trousseau—which, if not corrected, might lead to most seriously mischievous, or even fatal, practice. M. Trousseau makes the amazing statement that atropine is less active by the skin than by the stomach, and that as much as $\frac{1}{10}$ or even $\frac{1}{5}$ of a grain may be used without causing inconvenience. He even proceeds to say that the same rule applies in the case of morphia, which is similarly more active by the stomach than by the skin! This is Homer nodding with a vengeance; and one can only hope that scarcely any one has read that part of M. Trousseau's otherwise excellent paper. Otherwise, the consequences might have been very grave, if we consider that $\frac{1}{4}$ of a grain of morphia has once proved fatal, and many times dangerous, and that the most serious symptoms have been induced by $\frac{1}{60}$ of a grain of atropine. Indeed, the slighter symptoms of atropism, which fortunately are of no serious moment (dryness in the throat, vertigo, and diplopia), are occasionally produced by doses three or four times smaller than this. Their appearance is an indubitable sign that it would be unsafe to push the remedy in larger doses.

Atropine is not a direct hypnotic, though it often makes sleep possible by relieving severe pain. It holds to morphia a notable relation in the series of hypodermic remedies for pain.

It is somewhat less frequently tolerated (in doses which are sufficient to relieve pain) than morphia; but it is an interesting and very valuable fact, that persons who are quite unable to bear morphia will often bear atropine, and *vice versâ*; and even in cases when both remedies are tolerated, we sometimes find

morphia, and sometimes atropine (the latter most frequently), producing a *permanent* effect. This relation, which I have often noted, has been remarkably illustrated in two cases which have been under my care during the last few days: one was a case of severe neuralgia attending shingles, and the other a case of extreme neuralgic pain from long impacted calculus in the ureter. In both cases morphia failed, and in the latter it always caused most unpleasant toxic symptoms, while atropine produced the most beneficial results in doses of $\frac{1}{60}$ and $\frac{1}{100}$ of a grain, respectively. I have also obtained excellent results with atropine in a case of spasmodic asthma, when opiates could not be tolerated in any shape; and, on the other hand, a case was lately under my care of sciatica in a young lady, where morphia acted beautifully, though atropine could not be borne even in the dose of $\frac{1}{100}$ grain.

A special hypodermic application of atropine which appears to me to promise the most valuable results, is its use in painful iritis, and especially in threatening glaucoma. I firmly believe that in two cases I have succeeded in preventing the latter affection from developing itself; at least the most threatening symptoms were present, and rapidly subsided under the use of $\frac{1}{60}$ grain injections of atropine.

Finally, I may remark of atropine that it is incomparably the best of all medicinal remedies for every kind of pain in the pelvic viscera. Nothing can approach it in this respect.

3. *Strychnia* has been used by me in quite a different class of cases to that for which only, so far as I know, it has been used by others. I have seen no valid reason for using it in *paralysis*, as many have done. But I have tried and proved it to be a most valuable remedy in certain varieties of neuralgic pain, viz. gastralgia, and neuralgia of the heart. The proper form is a solution of sulphate of strychnia, 2 grains to the ounce of distilled water, and the proper commencing dose is two minims $\frac{1}{120}$ grain). The doses recommended by Eulenburg for paralytic affections are much too large for anodyne purposes, and we risk unpleasant toxic effects if we carry the dose beyond $\frac{1}{60}$ grain. My decided opinion is, at present, that there is no such remedy for gastralgia as strychnia, subcutaneously injected in doses of $\frac{1}{120}$ to $\frac{1}{60}$ grain.

4. The last hypodermic agent I have to refer to is caffeine, which I have employed in two cases of neuralgia and one of insomnia from chronic alcoholism. The dose employed in each case was one grain. In one instance of severe neuralgia of the superficial branches of the circumflex in the shoulder, two successive injections of caffeine (over the biceps) appeared to cut short the malady altogether. In a case of dorso-intercostal neuralgia attending shingles, the patient was injected daily for five or six days, with the effect of notably mitigating the pain on each occasion. And in a woman who had drunk to great excess for years, without ever having distinct delirium tremens, but could not sleep at all, and was a prey to distressing visual hallucinations, a notable improvement was effected by caffeine. She was injected twice a week for three weeks, and on each occasion got great temporary relief, which various other remedies (quinine, ether, morphia) failed to produce. Unfortunately, she then ceased to attend. I cannot but entertain the hope that caffeine may prove a very valuable remedy, both in neuralgia and in alcoholic insomnia.

On a future occasion I may perhaps return to the subject of hypodermic injection, *apropos* of other remedies which I have employed by this method.

Reviews.

Elektro-Therapie. Von Dr. MORIZ BENEDIKT, Docent an der K.K. Universität zu Wien. Wien, 1868. In 8vo, pp. 247.

(*Electro-Therapy.* By Dr. M. BENEDIKT. Vienna, 1868.)

Electro-Physiology and Therapeutics. By C. F. MORGAN, A.B., M.D. New York: William Wood & Co. London: Robert Hardwicke. 8vo, pp. 714.

OF the two books mentioned at the head of this article, it is with Dr. Benedikt's that this journal is chiefly concerned, as the treatise of the late Dr. Morgan is almost exclusively occupied with electro-physiology, the section on therapeutics being limited to the last twenty-six pages of the book. Dr. Morgan has carefully studied the abstract doctrines of electro-physiology, and his work will be valuable to physiologists; but his therapeutical chapter, although it presents an interesting abstract of the latest researches on particular branches of electro-therapy, shows no traces of original observation; and the author exhibits a contempt for the practical results that have been obtained by clinical workers in several important departments which is not to be justified. He seems to place no faith in any practical applications of electricity, except to paralysis of muscles, galvanic puncture of aneurisms, and galvanic cauterisation of tissues. "Such," he says in conclusion, "are the definite scientific applications of electricity to medical purposes; of the many others it need only be said that they are either based on incorrect theory or *diagnosis* of disease, or an imperfect or incorrect knowledge of electro-physiology; although I do not deny that *future* researches may enable us to do more, much more, than has hitherto been done in this direction."

The treatise of Dr. Benedikt, on the other hand, is of the highest practical interest. The first section contains an admirable description of the mechanism and principles of the modern apparatus for the application of galvanism and of faradisation. The next chapter contains a brief and clear exposition of the laws of the reactions which the healthy human body gives to the various modifications of the current; and the third is devoted to the principles which should guide us in testing electric sensibility and contractility. Each of these chapters contains so

many important conclusions, that even an abstract of their contents is impossible with our limited space.

The next chapter, on the general principles of electro-therapeutics, must be briefly analysed, since it will afford our readers a good general idea of the author's opinions as to the range of the practical uses of this class of therapeutic agents.

Benedikt lays down, as an absolute first principle, that electricity, to be of real use, must be applied to the seat of the disease; and insists, that without the most careful previous diagnosis we shall work in vain; he gives some interesting hints as to the application of electricity itself to the discovery of the peccant part. He treats, first, of galvanisation of the brain, in diseases depending on cerebral mischiefs. Faradisation is of no use in these cases. The constant current from a small number of cells (never more than ten or twelve) is to be applied either to the long or the short axis of the cranium; but Benedikt also places very great reliance, in these cases, on the effects of galvanising the sympathetic; indeed, he even says that this is the most effective plan for the treatment of symptoms which are of intracranial origin. (He gives some wonderful results in obstinate, and what would be usually called incurable, *tic-douloureux*.) These galvanisations of the brain, however, require to be conducted with great caution, especially when the sympathetic is acted on; and Benedikt mentions that he has seen eclampsia and cerebral hæmorrhage produced by careless application of the method. The sittings ought not to be more than half a minute in duration at any time: but the occurrence of giddiness should cause us to desist instantly. In paralysis and anæsthesia of central origin it is often necessary, after a certain stage of progress has been reached, to continue the treatment peripherally—*e.g.* positive (copper) pole on spine; negative (zinc) on the nerve which we wish to act on: or positive pole on the nerve, and negative on the muscle it supplies; or, finally, local faradisation.

Spinal symptoms may be treated in four methods. 1. Galvanisation along the vertebral column (up or down current), the principle being to send the current towards that part of the cord which we suppose to be specially affected. If any vertebra be tender on pressure, or sensitive to galvanism, the current should be made to *come out* through this, by putting the zinc pole on it. Neuralgias and spasms of spinal origin are to be treated in this way; the current being regulated according to the sensitiveness of the patient. 2. Galvanisation of the cord and the nerve roots is to be applied in cases of neuralgia apparently originating in the nerve roots (a large class, according to Benedikt). The positive pole is kept fixed on the vertebra opposite the highest nerve origin that can be concerned, and the zinc pole is

stroked downwards, by the side of the spinous processes, some forty times in succession. According to Benedikt, this is a most powerful mode of treatment, and rarely fails to cure idiopathic neuralgias in a very short time. 3. Galvanisation from cord to nerve, from cord to muscles, and from cord to painful or anæsthetic skin, may (as mentioned with regard to *cerebral* cases) be needed in the progress of treatment of *spinal* paralyses and anæsthesiæ. 4. Finally, local treatment, by galvanising nerve and muscle, or by faradisation of skin and muscle.

As regards the distinction between the use of the constant and of the faradaic current, the following rules are laid down. Galvanism, only, must be applied in all cases where we wish to affect the brain, the cord, or the sympathetic. In central paralyses, after the constant current has effected a restoration of the voluntary power, local faradisation may often be applied to restore the *nutrition* and the *electric sensitiveness* of the muscle, which in many cases still remain very defective. (The *primary* current should be used.) In centrally-produced anæsthesiæ, which do not get entirely well with central galvanisation, faradisation with dry conductors (and *secondary* current) will sometimes complete the cure. Faradisation, so far from being useful, is commonly *hurtful* in neuralgiæ and spasms dependent on central causes. The alternation of the galvanic and faradaic currents is often of use in the progress of a case, especially in hysteric and facial paralyses. Benedikt observes that in peripheral hyperæsthesiæ, such as the rheumatic, and even in some neuralgiæ, faradisation may do good service; but that it is to be avoided as mischievous in all cases where there is neuritis or hyperæmia of the nerve. As to the *intensity* of the current to be used Benedikt remarks, that pain ought never to be produced except in the special case of hysterical hyperæsthesia and hysterical paralysis: in all other cases painful electrification is useless, and generally mischievous, and a formidable list of evils which have actually resulted from it is given.

On these latter topics we have a few words to say. We should be inclined, from our own experience, to remodel Benedikt's rules in the following way. We agree that the painful current, of either kind, is never useful or proper, except in the hysteric affections. But as regards faradisation in neuralgia, we have this criticism to make on Benedikt's rule—that it does not go far enough. The cases, namely, which he speaks of under the title of hyperæmia of nerve, or neuritis, do not, as we believe, form a separate class; they merely represent a stage which occurs in all neuralgiæ which are of a certain intensity and duration; and it is very doubtful if there be any true inflammation or hyperæmia of the nerve. Faradisation should in no case, we believe, be applied, except in those early stages in

which as yet there is no development of points which are tender on pressure, or morbidly sensitive to electricity: and on the whole we should rate its inferiority to the continuous current, as a remedy for neuralgic pain, as even greater than Benedikt seems to admit. On the other hand, it is a splendid remedy for hysteric hyperæsthesia, anæsthesia, and paralysis.

Unquestionably, the points in this work which will excite the most discussion are the statements of the author as to the remarkable effects of galvanisation of the sympathetic, and as to the power of electricity to effect certain trophic changes, and the removal of solid and fluid exudations from joints. The "sympathicus-frage" is a particularly interesting question; and it is certainly much, after all the suspicions which the profession has not unnaturally felt as to the trustworthiness of Remak's statements on this matter, to find that Benedikt, while criticising some of Remak's doctrines freely and irreverently enough, has come to the conclusion, from careful researches, that electric stimulation of the sympathetic really is a great curative agent. Altogether, we can confidently describe this volume as a very important contribution to practical therapeutics, and one which ought to be carefully studied by English practitioners.

Essai sur l'Emploi thérapeutique de l'Alcool chez les Enfants, et en général sur le Rôle de cet Agent dans le Traitement des Maladies aiguës fébriles. Par le Dr. PAUL GINGEOT, Ancien interne des Hôpitaux, etc. etc. Paris: Adrien Delahaye. 1867. 8vo, pp. 139.

(*Essay on the Therapeutic Administration of Alcohol to Children, &c.* By Dr. PAUL GINGEOT. Paris, 1867.)

This book is an interesting specimen of a movement which has been going on during the last few years in France, and will certainly have important results on the treatment of disease. The initiative was taken by M. Béhier, the distinguished clinical professor in the Faculty, who has always been a diligent student of English medical works, and had noted with interest the remarkable practice of Todd, which to Frenchmen of that day must have seemed, at first sight, madness. With a courage which at first found few imitators, M. Béhier threw aside prejudice, and gave alcohol a cautious but a fair trial in acute inflammations, especially pneumonia, and reported very favourably¹ of the results of his experiments.

¹ See an admirable paper by M. Béhier in the *Bulletin de Thérapeutique* for January 1865. Also his large work, *Conférences de Clinique Médicale.* Paris, 1866.

M. Gingeot, the author of the volume before us, is one of the most distinguished of M. Béhier's pupils, and, having carefully observed the practice of his teacher, was induced to take up the inquiry into the therapeutic properties of alcohol on a large scale. How thoroughly and impartially he has performed his task the able treatise which we are noticing sufficiently proves; but those who had the pleasure of conversing with M. Gingeot during his visit to England, some two years since, know even better the extraordinary pains he took to ascertain with accuracy the results of the various modifications of the alcoholic treatment of disease which are adopted by various English physicians. Nothing has been written in our language, upon this topic, that equals this essay in clearness, and exhaustive statement of the facts and arguments.

It is by no means always the shortest treatises which are the easiest to review, and M. Gingeot's book is certainly not one which can be effectively analysed in a few words; for while singularly modest and unostentatious in style, it is filled with important matter; and a considerable portion of the volume is occupied by a number of accurately-recorded cases. We trust that all our readers will read the book itself, and shall therefore content ourselves with stating the main conclusions at which he arrives.

As to the physiological action of alcohol, M. Gingeot declines to pronounce a positive opinion; and though he evidently distrusts the wholesale statements of Lallemand as to its complete elimination, he yet does not see his way clearly to acknowledging it to be an *aliment*, except in a secondary sense. (It is probable that if the recent researches of M. Schulinus, and others, had been published at the time he wrote, M. Gingeot would have gone further in this direction.) As to the therapeutical question he is much more decided. He comes to the conclusion that alcohol may be used in a large number of acute diseases, and even during the pyrexial stage, with benefit; and he is also of opinion that the treatment answers as well in the case of children as in that of adults. He gives an analysis of the actual practice of various British physicians, who in theory occupy very different positions in the alcohol controversy, and argues, as we think satisfactorily, that the much-talked-of reaction against the doctrines of Todd is more apparent than real. After allowing freely the probability that the alcoholic treatment has been abused by rash and ignorant persons, he concludes his treatise with these words: "The nature of the physiological effects of spirituous liquors assures them a large space in the arsenal of the physician; and although it is incontestably true that they frequently prove ineffective in acute diseases, and that they have been singularly abused in chronic affections, this fact is power-

less to affect the results which have been obtained ; theoretically and practically the new method has given its proofs, and if there are still imperfections to be found in it, that is a motive for studying it further—not for rejecting it.”

Sur l'Emploi de l'Alcool dans le Traitement de la Pneumonie.
Par G. PÉCHOLIER. Paris : Asselin, 1867.

(*On the Use of Alcohol in the Treatment of Pneumonia.* By G. PÉCHOLIER. Paris, 1867.)

M. Pécholier is a more cautious and guarded follower of the principles of M. Béhier ; nevertheless he comes to conclusions which would have been treated as rank heresy in the France of but a few years since. He says that in certain inflammations, and especially in certain cases of pneumonia, alcohol acts beneficially in virtue, chiefly at least, of its stimulant properties. He agrees with Todd's system to a certain extent, allowing that there are many cases of pneumonia which require stimulation from an early period, the vital powers being distinctly depressed. He maintains, however, that it is otherwise in other forms of the disease ; and here the alcoholic treatment is either useless or positively harmful. This is an opinion which very much resembles what it is fashionable to represent as “moderate” English doctrine on the subject. At the same time it is to be remarked that much of his timidity as to the effects of alcohol appears to be due to the fact that as yet he has feared, on *à priori* grounds, to use it in some cases to which it is really especially applicable. M. Gingeot, though apparently more bold, is more scientific, and more truly cautious in his appreciation of the cases which do, and of those which do not, require alcohol, than M. Pécholier. But at any rate the two volumes, together with the previous writings and the continued teaching of M. Béhier, prove sufficiently clear the downfall of that purely theoretical view of inflammatory diseases which (mainly under the influence of Broussais, and after him of Bouillaud) has lingered longer in France than either in England or in Germany.

Annuaire de Thérapeutique, 1868. By A. BOUCHARDAT.

The present volume of this useful publication opens with a *history of Indian opium* by M. Créteur. He states that a kind of opium is often met with in commerce having the appearance of Smyrna opium externally and internally, but that he has assured himself that it is Indian opium worked-up in Egypt and in England, and afterwards brought into the market as Smyrna opium.

M. Leureiro has studied the influence of *tobacco* upon the eyes

of the workmen employed in the cigar manufactories of Lisbon. He states, that independently of the sad effects of tobacco upon the general health of the workmen, resulting in anticipated old age and premature death, the emanations of tobacco cause inflammation of the eyelids and conjunctival membrane, and often even mydriasis and amaurosis. He is further inclined to attribute certain forms of mental disease, of general paralysis, of paraplegias and softenings of the brain, and other affections of the central nervous system—maladies which it appears are unusually common in Lisbon—to the same origin. M. Bouchardat observes, in reference to these statements, that no such accidents are observed in the well-managed French manufactories.

The use of tobacco in strychnia poisoning is illustrated in a case published by Chevers. A girl of eleven years swallowed about three grains of strychnia accidentally. Strong tetanic convulsions appeared after half an hour. At the third hour the convulsive attacks, resulting in opisthotonos, lasted one and a half minutes, during which the chest was fixed, and suffocation impended. Emetics were tried without success, and then infusion of tobacco was repeatedly administered. During three hours she took, in sixteen doses, ʒij. of an infusion of tobacco (gr. xlv. tobacco to about ʒxxxv. boiling water). At the end of this time, *i.e.* about the seventh hour of poisoning, vomiting commenced, and recurred at intervals throughout the night, and part of the next day. The convulsions ceased after the first vomit, and did not return; and the patient was convalescent five days after the accident. M. Chevers is sure that this small quantity of tobacco would have acted before three hours if its toxic properties had not been neutralized at first by the condition of the nervous system induced by the strychnia.

J. Rosenthal corroborates the observation made by Dr. Grube, that *artificial respiration neutralizes the poisonous effects of strychnia*. The process must be continued for three or four hours; for if it be suspended before the expiration of this period, the convulsions will be renewed—proving that the poison has not lost its power, but that the presence of abundance of oxygen in the blood destroys its convulsive effects. He supposes that the strychnia is either eliminated or transformed into an inoffensive substance during the process of artificial respiration. These observations have a direct bearing upon the treatment of *tetanus*.

G. Pécholier and C. Saint-Pierre have examined *the ordeal poison of Japan*. It consists of an infusion of the bark of the root of a bush called *Icaja*, or *Boundou*, belonging to the Apocynaceæ. The poison closely resembles strychnia in its action. Administered by the stomach or the areolar tissue, its successive effects are as follow:—Augmentation of the pulse and respiration, followed by considerable diminution of these movements, and at

the same time an increase in the sensibility ; then tetanic convulsions ; and lastly, insensibility, paralysis, and death.

J. L. Prevost's experimental researches upon *the action of veratrine* are briefly analysed. Prevost divides the effect of the poison into three periods. First: Excitation, followed by the appearance of muscular contractions which characterise the second period. These muscular contractions have at first sight a great resemblance to those of tetanus, due to an action upon the spinal cord. The third period is one of resolution—complete loss of muscular excitability, and considerable enfeeblement of the cardiac and respiratory movements. He insists upon the possibility of a return to the second period, so that the resolution, instead of ending in death, may be replaced by fresh spasmodic contractions like those of the second period, and then a progressive return to the normal state, and a true cure. When the animal is in the third period of poisoning, the spinal muscular contractions can be excited by (*a*) direct stimulation of the muscles, (*b*) of the motor nerves, or their cut ends in a separated limb ; or (*c*), by the excito-motor action of the spinal marrow. Seeing that the convulsive movements are renewed on the way to restoration, Prevost regards this as a distinguishing feature between the action of strychnia and veratrine ; and he concludes therefore that the latter poison is a *modifier of the muscular contractility*, and that for the present this must be considered as a property peculiar to veratrine.

Eugène Pélikan's observations on *saponine* (the active principle of the common corn-cockle, our medicinal senega and other plants belonging to the Caryophyllaceæ and Polygalaceæ) are given in this volume. The following is the sum total of these observations ; and a very important result it is, if it should prove correct : “ Saponine, and substances identical with it, produce *local paralysis followed by rigidity of the muscles, and also paralysis of the sensitive nerves.*”

From a series of researches made in 1863 upon the *anæsthetic properties of protoxide of nitrogen*, by L. Hermann, and who has twice respired the gas, and thrice undergone its asphyxiating influence, he concludes that the respiration of the pure gas is dangerous, and that it can only be given safely when mixed with oxygen.—[Recent experiments, which we shall refer to in an early number, appear to contradict these conclusions.—EDS. PRACTITIONER.]

J. M. de Silva Goutino gives an account of *uabano* or *guarana*, the fruit of *Paullinia sorbilis* (of the same family as the horse chestnut), which is used in some parts of South America as a substitute for tea, coffee, and cocoa. Montegarra has a word about its use. He says, in June and July there is no drink more salubrious or more stimulating than a cup of guarana.

After drinking it one feels more vigorous, as if one had taken food; it is a means of restoring the general sensibility to a more acute and active condition, the ideas flow more readily, and muscular fatigue is relieved.

M. Bouchardat occupies nearly a fourth of the entire volume by an exhaustive *memoir upon coffee*. To those who wish to know something of the introduction of coffee, and the relative merits of the different varieties, this paper will prove to be full of interest. To all those persons who enjoy a cup of Parisian coffee, the following information will be most acceptable:— 1. About five per centum of powdered sugar is to be sprinkled upon the coffee-grains during the process of roasting. This serves two ends: first it gives a deep colour to the infusion (and so does away with two objections—the use of chicory, and the need of carrying the roasting a little too far); and secondly, it concentrates the aromatic principles of the burnt coffee. 2. M. Bouchardat approves of the scruple *des amateurs passionés* who roast, grind, and infuse the same day. 3. To prepare the infusion, lightly pack 15 drachms of the ground coffee in a porcelain percolator, and turn upon it three fluid ounces of boiling water. This preliminary act insures the exhaustion of the coffee. $18\frac{3}{4}$ fluid ounces more of water are now turned upon the coffee, so as to obtain six half cups, or $18\frac{3}{4}$ ounces of infusion.

P. Lorain advocates the *injection of warm water into the veins* in the collapse stage of *cholera*, and gives an account of a successful case.

There are several articles upon the physiological action and medicinal use of bromide of potassium. As a whole this little volume probably gives a good general view of the works on therapeutics and toxicology published in France during the year 1867; but we cannot apply the same observation to similar labours on this side of the English Channel.

We have often experienced considerable inconvenience in using these very useful and well-arranged volumes, resulting from the absence of a precise reference to the work in which the particular observation quoted is given in its original form and detail.

The absence of full references not only diminishes from the value of the book, but must often, we think, lead to great confusion. In the present volume, a case of poisoning by tincture of aconite is given without the slightest indication of its source. We believe, however, that we recognise it as having occurred at one of our London hospitals.

Royle and Headland's Materia Medica. Fifth Edition. Churchill, 1868.

The new edition of this valuable work is marked by the same wealth of chemical and botanical learning which has always

distinguished it above all other treatises on *Materia Medica*. We cannot say as much for that portion of the volume (some fifty pages or so) which is devoted to the subject of Therapeutics. We do not understand how a teacher of Dr. Headland's remarkable ability and knowledge can find any comfort in continuing to use such a system as that which is put forth in the special section on therapeutics at the end of the book. We cannot help asking, what can be the use of a system which divides remedies into (A) "mechanical," (B) "chemical," and (C) "vital," when we find under the first of these groups a sub-class of "demulcents," which consists almost altogether of various substances which are nothing more nor less than starchy and saccharine foods? Does any sane medical man still believe that the effect (*e.g.*) which arrowroot produces in adynamic sore-throat is that of a liquid poultice?

No doubt it is very difficult, in a handbook which is chiefly intended to prepare students for examination, to adopt any therapeutical classification of remedies which approaches even reasonably near to the philosophic ideal. But we really think Dr. Headland might, at least, have been expected to give the best he knew of; and we cannot imagine why he did not introduce the classification used in his own "Action of Remedies," of which a new and much improved edition was published last year. We deny that Dr. Royle's classification is convenient for any "practical purpose" except that of satisfying the student's mind with the merest words—words that have no life or meaning in them; and this with regard to the most important of all the branches of medical teaching, the very goal and object of all our studies, as a high authority lately called it. And we have another quarrel with Dr. Headland—with whom, as one of our ablest teachers, we are heartily sorry to quarrel at all—about a matter in which we had hoped to find he had made a considerable advance over the routine carelessness so common in writers on *Materia Medica*—we mean the matter of *doses*. These are almost always given in the text-books *much too large*, and Dr. Headland also sins considerably in the same direction. A substance which we have often taken as a test object to prove the accuracy of the books is Indian hemp, and we have scarcely ever failed to find mistakes. Our author is no better than the rest, for he puts the dose of the extract at $\frac{1}{2}$ gr. to 1 gr., "and sometimes much more (!)" and of the tincture he prescribes 10 minims to 1 drachm. The latter prescription we have no hesitation in saying is quite monstrous, supposing the preparation to be a good one. We have more than once seen 1 grain of a good extract produce most uncomfortable and alarming symptoms. Other examples of over-dosage in Dr. Headland's book are podophyllin and morphia.

One more piece of fault-finding, and we have done. It is a most serious omission that Dr. Headland says nothing whatever of the hypodermic method of administering medicines, a method which represents one of the greatest practical advances in Therapeutics that has ever been made; and that, as a consequence of his indifference on this subject, we find him altogether ignoring the remarkable powers of atropine as a medicine. This is a real blot, which ought to be removed, without fail, in the next edition.

Garrod's Materia Medica and Therapeutics. Third Edition. London: Walton, 1868.

The appearance of a new edition of this excellent work calls for little remark, except in one respect. The body of the book retains the same form in which it has long proved so highly and practically useful to students, the only considerable alteration being the definite adoption of the new system of chemical notation in the description of processes—to the great joy of students, we should imagine. The chief feature of interest to the readers of this journal is that part of the volume in which Dr. Garrod lays down the outline of a system of therapeutic classification. He adopts the principle of arranging medicines according to the organs of the body which they are believed to act upon; a principle which we believe to be imperfect, and shall perhaps, one of these days, make the subject of some critical remarks. It is at least, however, a very great improvement on the plan of classification in Royle and Headland.

According to this scheme there are three main divisions of remedies:—

I. Internal remedies, which produce effects both before and after their absorption into the blood; these are again divided into six classes.

1. Medicines which act on the blood (blood tonics, alkalines, acids and refrigerants, alteratives).

2. Medicines acting chiefly on the nervous system:—A, chiefly on brain—exhilarants, narcotics, soporifics, and anodynes; anæsthetics. B, chiefly on spinal cord—spinal stimulants and spinal sedatives. C, on some portions of the central system, and on the ganglionic system—antispasmodics, nervine tonics, and anti-periodics.

3. Medicines acting chiefly on the heart and vessels—vascular stimulants, vascular sedatives, and vascular tonics.

4. Medicines acting on special organs:—A, on alimentary canal—(a) Sialagogues; (b) emetics; (c) cathartics, viz. laxatives, simple purgatives, drastic purgatives, hydragogue purgatives, saline purgatives, cholagogue purgatives; (d) anthelmintics;

(e) stomachic tonics; (f) stomachic stimulants; (g) stomachic sedatives. B, on respiratory organs and passages—(a) Errhines, (b) expectorants, (c) pulmonary sedatives. C, on skin—sudorifics. D, on kidneys—(a) diuretics, (b) lithontriptics, (c) affecting mucous membrane of urinary tract. E, on generative organs—(a) emmenagogues and ecbolics, (b) aphrodisiacs, (c) anaphrodisiacs. F, on eyes—(a) pupil-dilators, (b) pupil-contractors.

II. The second division contains medicines which act only *locally*.

1. Irritants—A, rubefacients; B, vesicants; C, pustulants.
2. External sedatives.
3. Emollients and demulcents.
4. Astringents and styptics.
5. Caustics and escharotics.

III. The third division includes agents used only for their chemical properties.

1. Antidotes.
2. Antiseptics and disinfectants.

The only criticism which we shall pass on this classification at present is, that it is much too *wordy*, and tends to perpetuate artificial and unreal distinctions. We must not conclude this brief notice of the book without remarking, that, in the matter of doses, Dr. Garrod is far more moderate and correct than Dr. Headland. He also notices such matters as subcutaneous injection, and the inhalation of pulverised remedies, in a serious tone, although too briefly to do them full justice.

Squire's Companion to the British Pharmacopœia. Sixth Edition. Churchill, 1868.

A new edition of this thoroughly valuable and practical work attests its solid popularity. We do not know a more constantly useful book, not only to the dispenser but to the medical man. If any one wishes to become a thoroughly learned prescriber, in the sense of being able always to select the best and most convenient form in which to prescribe any medicine whose effects he wishes to exert on his patient, he should give—we won't say his days and nights—but his hours in the morning, when patients don't come in too fast—to the diligent study of Mr. Squire's book.

The present edition contains (besides many new non-official remedies) a useful addition in the shape of descriptions of the *colours and characters* of the liquid and solid preparations; after the standard of the beautiful collection which was placed in the French Exhibition of last year.

Clinic of the Month.

Syphilis simulating Carcinoma and Phthisis cured by Iodide of Potassium.—Dr. Wilks sends us reports of two very remarkable cases of this kind, which merit the careful attention of medical men. In one case the patient had been treated for phthisis, and had been given up as hopeless; in the other, supposed to be carcinoma, the physician had abandoned all prospect of cure. In both the patients were *completely* restored to health by the employment of iodide of potassium. Dr. Wilks thinks that while the use of the iodide in cerebral complaints of this kind is now tolerably well confirmed, hardly sufficient attention has been given to it in pulmonary affections. He regards as a useful test of its efficacy the fact, that whilst in some cases three or four grains of the iodide will produce all its well-known effects—coryza, frontal headache, &c.—as many as fifteen or twenty grains may be taken in syphilis with impunity for many weeks. The first case was that of a gentleman aged 40, who had been under a surgeon for syphilis, and was sent to Dr. Wilks for chest disease. He was in a miserably cachectic condition, and had most of the symptoms of consumption. He had, however, coppery blotches on his face, and his palate presented a foul ulcer with denuded bone. He was given fifteen grains of the iodide and two grains of quinine *t. d.* At the end of the first month he showed signs of improvement, and at the end of the second month he had become much better; the throat was well, and the auscultation-signs greatly improved. Dr. Wilks states that he believes this case was ultimately completely cured. The second case is a more singular one. The patient complained of “wasting away,” and on examination his limbs were found emaciated, and his abdomen greatly enlarged; in fact, the liver was immensely increased in size, reaching below the umbilicus, and quite over to the left side. A lump the size of the fist was also found lying near the pubes. Dr. Wilks at first regarded this case—as had been done by previous attendants—as one of cancer of the liver and omentum. *There was no history of syphilis.* Without hoping for much, Dr. Wilks ordered him a few grains of the iodide and bromide of potassium. Some time after the patient returned saying he was better. The liver was smaller. A couple of months later examination revealed a hard gland in the neck,

and another in the sternum. With some hesitation Dr. Wilks ordered him the iodide in five-grain doses. The result was a decrease in size of liver and of cervical gland. Ultimately, by perseverance in the employment of the iodide, the patient was thoroughly restored to health.

Adherent Prepuce treated by Circumcision.—A number of cases in which adherent prepuce has retarded or prevented discharge of urine have recently been successfully treated by Mr. Thomas Bryant, who employs circumcision as the most satisfactory remedy. Mr. Bryant urges on the practitioner the propriety, in all cases of stone in the bladder of children, of making a careful examination of the penis, which he says will, in many instances, be found to have an adherent prepuce. Mr. Bryant reports eight interesting cases, of which one was incontinence, two were retention, one difficult micturition and retention, one intermittent flow of urine and pain, one incontinence with prolapsus ani and hæmaturia, and lastly one of priapism. All these were cured by circumcision. The case of priapism was that of a child, aged two years, in which the penis had been in a state of erection from birth, but the child had never experienced any difficulty in making water. (See *Medical Times and Gazette*, No. 933.)

The Administration of Chloroform.—A simple form of inhaler has lately been devised by Dr. John Murray, for the administration of chloroform, which those who are opposed to elaborate apparatus may approve of. It is really very little more than a modification of the handkerchief-cone, used by so many of Sir James Simpson's pupils, consisting of a few folds of flannel or cotton stretched on a wire framework, which fits under the chin, and is applied to the face of the patient. It is sold at a low price, and has, we believe, been employed successfully in various operations at Middlesex Hospital.

An improved Method of extracting Cataract is described by Dr. Wolfe, Ophthalmic Surgeon to the Aberdeen Royal Infirmary. Dr. Wolfe's object is always to remove the cataract through an incision sufficiently large to give free exit to the entire lens, of whatever size and consistency, without passing within the internal parts or the corneal wound, and at the same time to insure rapid union. In certain traumatic cases he performs both iridectomy and extraction at the same sitting, but as a rule he performs iridectomy about six weeks before extraction. Dr. Wolfe describes his method of operation, but the details are too numerous for notice here. We may mention, however, that he has had no less than 107 successful cases under the mode of operation he recommends. We consider the advantages to be, (1) that the different stages may be carried on with some certainty of

success. (2) The prospects of success being so good one eye may be open before both eyes have become blind. (3) It does not require long confinement, and does not distress the patient. (4) It is applicable to cases of local and constitutional complications in which David's operation is inadmissible. (See *Lancet*, June 6.)

The Écraseur in Laryngeal Tumours.—At the meeting of the Medico-Chirurgical Society (May 26) a paper by Dr. George Johnson was read. In this Dr. Johnson recorded seven cases of a most successful character in which laryngeal tumour detected by the laryngoscope was removed by the écraseur, the form of the instrument used being a modification of the écraseur of Sir D. Gibb. Unlike the laryngeal forceps, this instrument is soft and harmless; rarely tears the mucous membrane, or seizes any other object than the growth to be removed. The wire embeds itself in the morbid growth, thus retaining a firm hold, and bringing the pieces away. The cases recorded fully establish its value in Dr. Johnson's hands. (*Ibid.*)

Sulphurous Acid in Syphilitic Ulceration of the Throat.—Following in the footsteps of Dr. Dewar, Dr. H. S. Purdon has been trying the value of sulphurous acid as a therapeutic agent. The special application of it recorded by him is to the class of affections above named. One case is given in illustration of the value of the acid. A gentleman had been under treatment by the iodide and bi-chloride of mercury, gargles of chlorate of potass, &c., and opium for more than eight weeks. Results unsatisfactory. Dr. Purdon then applied the sulphurous acid in the form of spray to the ulcerated surface. It was applied three times a day, and in three weeks the throat was quite well. (See *British Medical Journal*, May 9th.)

The Treatment of Tertiary Syphilis.—In a lecture delivered at St. Bartholomew's, Mr. Paget remarks that the failure of iodide of potassium in the treatment of tertiary syphilitic ulcers of the leg is a very rare occurrence. It is, however, necessary that certain rules should be observed with reference to the administration of this drug, especially in cases of tertiary syphilis, whether it be in the form of ulcers or periostitis, or other symptoms. The mixture which he uses most frequently is composed of three grains of iodide of potassium, and half a drachm of aromatic spirit of ammonia, given in \bar{z} ij of water three times a day. This is quite sufficient for the cure so far as cure is possible. The doses prescribed should be taken soon after meals; the advantage of this being the avoidance of the sensation of sinking and depression which follows its administration on an empty stomach. In the few cases in which this mode of giving the iodide fails, Mr. Paget says the dose may be increased to nine grains, or even to thirty, in the day. He does not approve of larger doses than these.

If the syphilis be associated with scrofula, the proper tonic treatment (cod-liver oil, bark, &c.) must be employed, in addition. In such cases Mr. Paget considers the iodide of iron almost valueless, and he strongly recommends in giving iron to "give it in the citrate or potassio-tartrate, together with the iodide of potassium. In this manner I believe you may get the good effects of both the medicines." (See *British Medical Journal*, No. 884.)

Laryngismus Stridulus relieved by Introduction of the Finger.—Drs. Wardell of Tunbridge Wells, and Rooke of Cheltenham, allege that this old resource is really most valuable. They say that it should instantly be tried in those perilous cases to which frequently the physician is quite suddenly called in. The finger should be introduced into the throat and then rotated. (See *British Medical Journal*, May 16th.)

Gouging versus Caustics in Caries.—Some cases which have been under the care of Dr. J. C. Barton of Adelaide Hospital, Dublin, seem to show that gouging is as efficient as, if not superior to, the treatment by caustic of carious bone. In one case, in which the caries presented itself in the os calcis, the operation was thus performed: a semicircular incision three inches long was made over the outer side of the os calcis, passing through the orifice of the two sutures which there existed; the flaps were dissected back, and the diseased bone freely removed with the gouge. There was left a cavity about the size of a hen's egg; very little bleeding. The cavity was filled lightly with charpie, water dressing being applied to the wound, and the foot placed on its inside. Little constitutional disturbance. The cavity and wound were daily washed out with weak solution of chloride of lime, the hole being fitted with pledgets of lint saturated with the solution, and a broad strap of plaster was applied. In six weeks the patient could walk about the wards on crutches, and in less than two months the wound was completely healed. (See *British Medical Journal*, No. 385.)

Tracheotomy in Chronic Laryngitis was recommended by Mr. Bryant, at a recent meeting of the Clinical Society, as a remedy of no mean value. The idea on which he bases the operation is that of obtaining physiological rest for the larynx. He proposes that the operation should be performed at an early stage of the disease. He stated as his reason for the proposal the failure of other remedies, but he would not suggest recourse to it till other and simpler therapeutic means had been tried.

The Torsion of Arteries in Hæmorrhage.—Professor Humphry of Cambridge, in a lecture on this subject, takes an impartial view of the argument *pro* and *con*, and concludes that when the torsion is properly effected the operation will be found

extremely useful for small vessels, such as the facial and tibial. In his hands torsion has proved more difficult than the ligature. It is necessary to include the vessel itself in the forceps; for it is useless to twist the surrounding tissues; and it is not always easy when blood is flowing to make sure of the exact point from which it flows. Again, it often happens that when the vessel has been caught the outer coat only remains in the forceps, the inner one slipping away. Dr. Humphry recommends all care in the process, and after the forceps have been set free to examine well the ends of the remaining torn end of the vessel. (See *British Medical Journal*, May 23d.)

Treatment of Puerperal Fever.—A liberal diet, and free employment of stimulants, Dr. Graily Hewitt stated to the Obstetrical Society to be the most effective treatment in this affection. He enjoins the strictest cleanliness, applies the binder closely and accurately to assist contraction and prevent the accumulation of lochia, religiously avoids “brisk purgatives” unless where the rectum is obviously loaded. *Intra-uterine*, anti-septic injections are, he thinks, also most valuable.

The Needle in Varicose Veins.—The *Medical Times and Gazette* (No. 931) reports two cases of Mr. Partridge's in which the needle and twisted suture were most successfully employed in the treatment of varicosity of the superficial pudic vein and the vein of the fore-arm.

Weak and feeble Heart treated by Digitalis.—It is contended by Dr. Edward Mackey, of Birmingham, that digitalis, so far from depressing, has under certain conditions a species of tonic action on the weak and feeble heart. Dr. Mackey supports the results obtained in his own practice by references to various published cases. He believes that the general idea of the depressive influences of digitalis prevents this drug being used in certain cases in which it would prove most valuable. He would not give it in fatty degeneration, or in aortic regurgitation, but he thinks it useful in mitral regurgitation, mitral obstruction, and aortic obstruction. He believes it useless in cases of functional disorder. (See *British Medical Journal*, May 30th.)

Chloroform Inhalation in Strychnine Poisoning.—A case which was recently under the care of Mr. Macarthy, the House Surgeon of London Hospital, is recorded in evidence of the value of this mode of treatment. The patient, a child, was kept under the influence of the anæsthetic for an hour and a half, and completely recovered. (See *Medical Times and Gazette*, May 9th.)

Popliteal Aneurism treated by Flexion.—A case which most forcibly illustrates the advantage of this mode of treatment is recorded by Mr. Timothy Holmes, in the *British Medical Journal*, June 13th. The aneurism was a small one, and

without any solid in the sac. The patient was kept in bed for a couple of days, and his bowels were opened. The flexion was commenced on April 30th, at 3 P.M. The pulsation was weaker than on admission, and was diminished by forced extension of the limb, and completely checked by flexion. "The leg was bent on the thigh as far as possible, and was fixed in that position by bandages, a leathern collar being put round the thigh and another round the leg, and the two attached by a few turns of the bandage. The thigh was bent, and the limb laid on a cushion. The patient slept tolerably that night, but complained of a good deal of shooting pain." There was not, however, any intolerable inconvenience. On May the 2d, the *bruit* could no longer be felt, and, in fact, the aneurism was cured, but the flexion was kept up a day longer. The patient remained in the Hospital for ten days more, and was then (May 13th) discharged. The only remnant of the affection was a small lump in the ham about the size and consistence of a chestnut.

Extracts from British and Foreign Journals.

Therapeutic Employment of Phosphide of Zinc.—This subject was brought before the French Société de Pharmacie, by M. Vigier, who said that the preparations of phosphorus in use have many objections which render their therapeutic employment unsatisfactory. They are either disgusting in flavour, or unreliable, or even occasionally both. The *phosphide of zinc*, on the contrary, unites all the qualities of an excellent drug, and is likely to replace all the other preparations of phosphorus. It is a greyish, perfectly crystalline substance, unaffected by moist air, remaining unaltered in pill or powder, and yet having the property of undergoing decomposition in the stomach into phosphuretted hydrogen, which exercises a similar therapeutic action to phosphorus dissolved in oil. It is preferable to phosphides of metals of the first class, because it is more stable, and it is superior to phosphide of iron in not being attacked by the ordinary secretions. It acts on the system in the same way as phosphorus, giving rise to the same lesions and effects, *i. e.* alterations of the blood, ecchymoses and hæmorrhages, congestion of the lung, paralysis of the heart, fatty degeneration of the cells of the liver and kidneys. It is very readily prepared. (*Journal de Chimie et de Pharmacie* for May.)

The Solubility of false Diphtheric Membranes.—The last-named journal contains a short review of the work of MM. Bricheteau and Adrian on this subject. One of the experiments is of interest: "A false tracheal membrane weighing about twenty centigrammes, thick, resistant, and representing a square centimetre of surface, was placed in a tub containing about five grammes of water. To this was added two drops of lactic acid; the solution was then agitated. In two minutes the membrane began to disintegrate, and gave signs of dissolving. A few drops more of the acid brought about the complete solution of the membrane. A more complete result was obtained by using lime-water, so as to form lactate of lime. Solutions of potash and soda acted much less powerfully. Bromine water, chlorate of potash, and common salt were all found less active in promoting solution of the membrane." The authors therefore recommend the solution of lactic acid as the best topical application to the false membranes of diphtheria.

The Treatment of Puerperal Peritonitis.—M. Hervieux publishes an article in the *Bulletin Générale de Thérapeutique* of May 30th, embodying an account of his method of treatment. He discusses various remedies proposed from time to time. Of blood-letting, he says that he does not approve of taking blood from the arm, but rather leans to local than general bleeding. Of local forms he disapproves of leeches, and gives his support to cupping. With reference to emetics, he considers it good practice to give at the commencement a dose of ipecacuanha, but he urges the practitioner not to administer it in the course of the disease. He gives high praise to counter-irritants (cantharides), and says that the objections made by the patient should not be listened to. Mercurial frictions he regards as possibly useful, but he evidently has no very high opinion of their value. Of refrigerants, he has little favourable to say, but he admits that in Béhier's hands they proved most beneficial. Tonics and antiseptics are, he thinks, of little value. Opiates he regards as useful in removing and allaying pain, but the doses must not be pushed far, or violent vomitings and nausea will follow. Finally, injections performed in the vagina he looks upon as most efficient means of treatment.

The Physiological Action of Bromide of Potassium.—A lengthy memoir on this subject, including a minute report of many experiments on animals, is published by M. J. V. Laborde in the *Archives de Physiologie* for May and June. One of the most important conclusions which the author arrives at is that this substance exercises no paralysing action on the heart, the heart being, in fact, the last organ in the body which dies under the influence of the bromide. The following inductions are formularised:—“The experiments lead us to infer: (1) A particular excitation immediately the substance is absorbed. (2) The progressive diminution, and then the complete abolition of the reactional movements of the limbs under the influence of various artificial excitations of the limbs. (3) The persistence of spontaneous or voluntary motility, notwithstanding the diminution or even the impossibility of reactional movements. (4) The gradual lessening and ultimate cessation of the respiratory movements of the flank. (5) Finally, the continuation of the movements of the heart, proved by exposure of the organ after all outward manifestations of life had disappeared.”

Thein and Caffein.—M. Leven shows by his recent experiments that caffein is at least twice as strong as thein. He gives the following summary of its effects, derived from the results of his experiments on animals:—(1) It determines convulsive movements in the limbs, in this respect differing from caffein. (2) Both alkaloids directly excite the heart and the

respiratory movements, and increase the arterial tension. (3) In exciting the circulation they stimulate the central nervous system, the brain and cord, but they do not destroy the properties of these centres. (4) The tetanic state produced by them is by the excitation of the cord. (5) They do not interfere with the properties of muscle.

Iodide of Phosphethyl.—This substance has been tried upon frogs by M. Vulpian, who points out that it approaches those other poisonous agents which up to a certain period of their metamorphoses in the system exhibit the same influence on the motor nerves as that of curari. (*Archives de Physiologie* for June.)

Nitrate of Silver in Cephalalgia.—M. Vignard reports some cases of this kind which are published in the *Journal de Médecine de l'Ouest*. In one case the patient had been suffering agonizing pains unrelieved by opiates. M. Vignard ordered the following:—Nitrate of silver, 10 centigrammes; bread, *quant. suff.* Six pills; one to be taken every hour. The result of this administration was complete relief. M. Vignard quotes Graves of Dublin, in support both of the practice and the theory involved in it.

Iodide of Sodium in Lead Poisoning.—In the *Gazette Hebdomadaire* M. Rabuteau suggests that the salts of sodium rather than those of potassium should be used in treating lead cases. In such cases, he says, the iodide acts like that of potassium, as an eliminative of the poison, which is found subsequently in the urine and saliva. The iodide of potassium he considers to be a poisonous salt, and inadmissible in cases of lead poisoning.

Lister's Carbolic Acid Treatment of Suppurating Wounds.—Important confirmation of Lister's results as far as regards the treatment of abscess comes to us from Germany. Dr. H. G. Joseph of Leipzig writes a paper (*Archiv der Heilkunde*, 1868-9), in which he describes the results of systematic experiments in the surgical clinic of the Jacob's Hospital. Of sixteen cases treated, six were "congestive" abscesses, three glandular, two mucous, one secondary to periostitis, two phlegmonous, one puerperal, and one a case of multiple cold abscesses. "From the above described sixteen cases we see that Lister's statements are in general completely verified, and his method has justified itself. The consequences are striking and astonishing as contrasted with the failure of the treatment which had been previously used. In no case did foetid decomposition of the pus occur, with the exception of No. 4, in which, unfortunately, atmospheric air, not disinfected, was allowed for a long time to reach the dressing. In no case was persistent hectic set up after

the opening; in most instances the fever already existing was reduced. All the cases in which the abscesses were free from complication with disease of bone healed in a fabulously short time. Specially weighty and instructive are the results in the six cases of congestive abscesses compared with the earlier cases, in which leaving the abscess unopened, or opening it early, has so frequently proved fatal. At the time the process can have little influence on the healing, since naturally the creeping abscesses cannot be cured till the perennial source of new pus (the disease of the bone) is completely cured. In the same way, we must not expect any lasting diminution of the fever, if this is kept up by a constitutional malady. The antiseptic method will only prevent fever which depends on decomposition and putridity of pus. In Case 6, Lister's process failed to overcome the pyrexia of puerperal fever in an hysterical anæmic woman. It only produced a remission in the daytime, and prevented fever from a secondary suppuration. (It is worthy of remark that this congestion-abscess healed with uncommon rapidity, probably because there was no bone disease connected with it.) Case 3, where the dressing was imprudently removed too early, serves as a warning and corroborative example, for there were immediate constitutional disturbance, fever, and copious purulent discharge; fortunately, however, it did not go on to putrid and stinking decomposition. After renewed application of the dressing and repeated disinfection of the cavity of the abscess, the fever vanished. The doctrine receives yet more striking confirmation from the above-mentioned Case 4, in which the entrance of air not disinfected into the fistula was followed by an obstinate, violent, and most debilitating fever, which only slowly disappeared, notwithstanding the greatest care in the dressing. Cases 2 and 4 (?) never had fever. In Case 1 also the temperature remained constantly normal after the opening of the second abscess. In Case 16 the fever had indeed some remission after the opening of the third abscess; but it diminished slowly at first, and was at all times connected with constitutional disease. Not only in all cases was no foetid putrid pus generated (except in Case 10), but in Case 1, after foetid pus had been evacuated from the second abscess, the discharge from this in twelve hours was changed to laudable pus without smell. In 7 and 8, which were both cases of suppurative bursitis, healing took place with especially unusual quickness; in the first case in eighteen days, in the second in eight days. How tedious has been generally the contest with creeping abscesses! The great glandular abscesses in Cases 9, 10, and 11, healing in nine, fifteen, and six days respectively; and the large abscess of the leg in Case 15, in twenty-three days. In Case 12, the healing was apparently delayed, but, as probably bone disease was at the

foundation of the case, nothing else was to be expected. The patient declined, in spite of all care, and is now in a most wretched state. In Case 16, the most striking, we might say incredible, results were obtained. The two large cold abscesses, and perhaps also some metastatic abscesses in the left thigh, were healed in six and eight days. . . . Our observations not only confirm all Lister's assertions, but also show something new, which Lister did not describe: namely, the presence of black urine. In Cases 1, 3, 4, and 6, several times there was either brown black, or perfectly black urine. . . . In Cases 3 and 16, the pigmented urine appeared thirty-six hours after the application of the carbolic acid; in Cases 1 and 4 after a longer interval. This urine had either clay-coloured sediment, or none; it was alkaline or neutral, and never contained albumen. Dr. Hoppert discovered carbolic acid in it. It subsequently appeared that every clear specimen of urine (during the use of carbolic acid), after a longer or shorter exposure to the air, gradually became coloured black from above downwards, just as carbolic acid, though not so quickly, takes a brownish colour. As yet the nature of the black urine pigment is not decided, but from the cases related it does not appear to be of importance clinically."

Chloroform in Intermittent Fevers.—Dr. D. Scott, of Bellefontaine, Iowa, has examined afresh the value of chloroform in intermittents. He says: "In twenty cases, after the administration of one fluid drachm each, the chill was immediately arrested, with the exception of one case in which the above dose was repeated in one hour; in eleven of the above cases the febrile stage was probably abridged; in the remaining cases the fever ran on about as usual, all, with few exceptions, terminating with profuse perspiration; in eight of the cases the paroxysm returned on the succeeding day, and in nine on the second day; three escaped, but were subsequently attacked in from seven to twenty days; in the remaining cases no reliance was placed on the curative properties of the chloroform (which I only administered for the purpose of abridging the chill), but was followed (*sic*) by large doses of sulph. quinine, as soon as the sweating stage was established." (*Chicago Med. Journ.* Feb. 1868.) A considerable amount of testimony now exists in favour of the power of chloroform, at least to abridge the more uncomfortable stages of the fits of ague, if not to cure the disease. Dr. Birkett has also recently borne testimony to the efficacy of chloroform, used in the same way. Tonics should be given in the intervals between the fits. Dr. Montgomery generally agrees with Dr. Birkett.

Iron in Intermittents.—Another American author strongly recommends the employment of iron, in the form of solution of

persulphate, in the treatment of ague. Eight to fifteen minims of this preparation are given every four hours; and the treatment has proved very successful.

Hyposulphite of Soda, &c., in Malarious Diseases.—The use of the hyposulphites as a substitute for quinine in periodic diseases has of late attracted much attention in America, and seems to deserve serious consideration. (*American Journ. Med. Sciences*, Jan. and April 1868.) The most remarkable testimony borne to the efficacy of the remedy is that of Dr. S. E. Hampton and that of Dr. W. E. Turner; the former of these physicians reporting on 66, and the latter on 125 cases. Dr. Hampton, who administered the hyposulphite of soda in fifteen or twenty grain doses every two hours, in intermittent fever, declares that it was most effective, indeed quite equal to quinine. Dr. T. Leavitt and Dr. W. H. Baxter also give testimony which is very favourable to the efficacy of the remedy. More recently Dr. Chubb, of Cambridge, Md., has carefully re-examined the question, with the following results. In twenty-seven cases of intermittent in which the treatment was employed, the paroxysms were averted in twenty-five; in eleven of these the arrest was immediate, no paroxysm occurring after the treatment was begun. These were nearly all tertian. In nine cases one paroxysm, and in the remaining five two or more paroxysms, occurred after the use of the remedy had been commenced; these were mostly quotidians or double tertians, and the recurring paroxysms were always milder. In five of the cases relapses occurred: in three of them the disease was again and finally arrested by the same treatment, which was continued some time after the chills ceased; in the other two the cure was completed by quinine. Of the two cases marked as failures, only one was completely so: in this case the hyposulphite had not the smallest effect; in the other it did some good, but it disagreed in the way of producing diarrhoea and griping, and had to be substituted by quinine. The general conclusion at which Dr. Chubb arrives is, that hyposulphite of soda is a very valuable substitute for quinine in a large number of cases of intermittent, and particularly in certain instances where quinine is not well borne or is inefficacious; he considers, however, that it is not to be relied on in the more severe pernicious fevers, and in general he believes that its action is slower and less energetic than that of quinine. He draws attention to the necessity for caution in not attributing to the remedy cures which are perhaps spontaneous. On the whole, however, it is obvious that there are very respectable grounds for giving the hyposulphites a trial in malarial affections of all kinds. It is another aspect of the proposals put forward so forcibly by Polli of Milan, some years back; and it will be extremely interesting to see whether solid

and reliable confirmation of the reported facts can be obtained in other countries than America. Obviously one of the first duties of therapeutists should be to vary the experiment by administering sulphurous acid in the same class of diseases, and noticing whether similar results to those reported are obtained. It is evident that a large field of research is opening out in this direction with regard to the whole series of blood-infections.

Persulphate of Iron in Uterine Hæmorrhage.—Fresh testimony to the efficacy of injections of persulphate of iron into the cavity of the uterus is given by Dr. C. M. Ford, of Washington. Dr. Ford reports an abortion case, in which after the removal of the placenta the hæmorrhage recommenced, and, as the patient had been greatly reduced by previous flooding, her condition was very serious. A solution of one drachm of the persulphate in four ounces of water was injected into the cavity of the uterus, with the effect of immediately and permanently arresting the bleeding. Besides this case, Dr. Ford has subsequently had two other abortion cases, and one example of menorrhagia, in which the injection of the persulphate was productive of similar benefit. ("Proceedings of the Clinico-Pathological Society of Washington," *Amer. Journ. Med. Sciences*, April 1868.)

The Prophylaxis of Baldness.—Dr. A. F. A. King believes that baldness is more common in men than women, as it notoriously is, because of the tight pressure exerted by the hat-rim, which he believes exerts pressure upon the arteries of the scalp. He therefore recommends that great care should be taken in choosing a hat, to study the shape of the skull, and to take care that no considerable vessel is compressed. Hats might be made to order, with a semicircular concavity in the rim at the spot where the nutrient vessel of the part threatened with baldness passes. Of course this theory and practice only apply to cases in which there is no other obvious morbid cause present. *Ibid.*

Bromide of Potassium in Intermittent Chorea.—Dr. J. P. Hunter of Cochran, Pa., records a very interesting case of chorea movements, resembling paralysis agitans, but limited to one side of the body, which came on daily at 4 P.M. and lasted two or three hours. There was unilateral headache on the corresponding side, dimness of vision, numbness of one side of the trunk, and coldness and numbness of one hand and foot. Ten grains of the bromide were given every six hours, and on the next day there was only a slight trembling at the usual hour. On the following day there was no tremor, though the numbness, dimness of vision, and headache remained. The bromide was continued for a fortnight, when all the symptoms disappeared. It is worthy of note that, on the theory

of malarial poisoning, the usual antiperiodics had previously been tried for several days, without the least benefit. (*Amer. Journ. Med. Sciences*, April 1868.)

Herniotomy without opening the Sac.—This mode of operating, which is older than Ambrose Paré, has been revived by M. Dutrelepont, who, after treating of its history, relates twelve cases in which he had operated for strangulated hernia without opening the sac. One of the patients, aged 72, died; but M. Dutrelepont attributes his death to some other cause than the operation. The eleven others were successfully operated on. M. Dutrelepont urges seriously on surgeons the propriety of more generally resorting to this operation. (*Archiv für Klinische Chirurgie*, Bd. ix. Heft 2, 1868.)

A Cure for Headache.—Under this title, Dr. Kennion publishes a note in the *British Medical Journal* (June 13th), in which he states that he has found the vapour of bisulphide of carbon a specific for headache of all kinds. About two drachms of the solution are poured upon a piece of cotton wool, which is inserted in a phial. The mouth of the phial is then *closely* applied to the temple, or behind the ear, till considerable smarting is produced. The effect is equally marvellous and immediate!

Physiological Action of the Indian and African Arrow Poison.—A very elaborate paper on this subject has been contributed to the *Journal of Anatomy* for May, by Dr. Beigel. The author records numerous valuable and interesting experiments upon the lower animals and on man, and concludes that the African poison is a much more toxic substance than the Indian urari. Dr. Beigel's paper deserves the careful attention of both physiologists and therapists, since it advocates no special theory, but honestly records a number of phenomena observed in the course of experiments which appear to have been conducted with more than ordinary watchfulness and precision. The author believes that the effect of the urari poison differs according to the dose which has been injected, this not only being the case in regard to the symptoms observed in men, but also to the post-mortem phenomena which he has been able to demonstrate, by physical means, in frogs. He considers that many points on which authors are at variance have their cause in the negligence of not stating the amount of urari they have been injecting. Bernard and Kölliker's statement that the urari deprives the motor nerves of their capability to cause contraction of those muscles into which they are inserted, is not in accordance with Dr. Beigel's experiments. Dr. Beigel agrees with Sir Benjamin Brodie in thinking that the action of the poison is propagated, not by the nerves, but by the blood-vessels. He thus describes the symptoms seen on administration of the

poison : "The first of the phenomena, provided the quantity either injected or taken internally has been sufficiently large to produce an effect, is *the relaxation of the muscular system*, first noticeable in the altered expression of the countenance, this becoming apathetic, stupid, to which drooping of the upper eyelid soon accedes, partially or totally covering the bulb. The individuals under the poisonous influence sometimes, not being aware of this occurrence, are under the wrong impression of not being able to see, whilst their eyes are only closed. If told of the error they open their eyes, but are not able to do this as they would under normal circumstances, part of the eyeball remaining covered by the lid. When small quantities have been administered, the muscular system does not partake any farther in the affection ; but in case of larger doses, the control over voluntary movement may be lost entirely, the involuntary continuing weaker, perhaps, but regularly. My experiments have shown that certain parts or groups of the system of voluntary muscles are more affected than others ; the upper extremities, for instance, being still capable of performing firmly these movements, while the lower are staggering and uncertain. Death only occurs by urari if such a dose has been taken as to paralyse the heart, or the muscles of respiration, otherwise the heart continues to perform its duty in a regular manner ; and, even in case of inactivity of the respiratory muscles, the animal will be restored to life and health if artificial respiration is performed." With respect to the African arrow-poison, Dr. Beigel says that "it affects, in the first place, the nervous centres, and, at the same time, the irritability peculiar to the muscles."

The Physiological Action of "Substitution Compounds."
—The fact in chemistry that, in certain substances, an equivalent of hydrogen may be replaced by an equivalent of an organic radical without altering the fundamental (chemical) properties of the substance is sufficiently remarkable. It suggests the question whether such substitution affects the physiological action of the substance. This question has been answered in a very valuable series of researches by Drs. Fraser and Crum Brown in this country, and MM. Jolyet and Cahours in Paris, and the reply is decidedly in the affirmative. Drs. Brown and Fraser added iodide of methyl to the alkaloids, morphia, strychnia, &c. The result may be stated generally to be the production of compounds comparatively inert in their physiological effects. These physiologists have reported (see *Journal of Anatomy* for May) an immense series of experiments, and we think their paper should be attentively read. The views generally expressed by them receive confirmation from the results published in a memoir which has just been laid before the French Academy by MM. Jolyet and Cahours. These

chemists experimented on the substitution compounds of aniline : ethylaniline, methylaniline, and amylaniline. Frogs exposed to the vapour of methylaniline soon became completely narcotised, with irregular respiration, and loss of reflex contraction under stimulus. This is singular, when we remember that the effect of aniline is to excite rather than to depress the cerebro-spinal system. Both the observations of the English and French experimenters show that the hypothesis of the similar action of chemically-allied substances is farther from demonstration than ever. (For MM. Jolyet and Cahours' essay see *Comptes Rendus de l'Acad. des Sciences*, June 1.)

Notes and Queries.

SULPHATE OF QUASSINE.—For some time past a substance sold under this name, and pretended to be obtained from quassia, has been much the rage in Naples. Some chemists who had examined it were surprised to find the enormous quantity of fixed matter it contained, and this fact led to suspicion as to the genuineness of the drug. Signor de Luca undertook a careful examination of the supposed sulphate, and found it to be simply a manufacturing residue, containing quinine, cinchonine, salicine, sulphate of lime, cream of tartar, salts of potash and soda, and a small quantity of extract of quassia. (*Journal de Chimie-Médicale* for May.)

TREATMENT OF PSORIASIS.—The best treatment for psoriasis, says M. Passavant, in the *Bulletin Thérapeutique*, is a thoroughly animal diet; in fact, *régime* Banting, *plus* milk, cocoa, and fatty meats.

CAUSTICS *versus* THE KNIFE IN CANCER.—In an able discourse delivered before the Brussels Royal Society of Medical Sciences, M. Bougard goes very fully into evidence on both sides. He concludes, with Maisonneuve, that in all cases when the cancer has an adherent base, and is not easily got at by the knife, caustics—especially the arsenical—are infinitely the best mode of treatment. But he admits that, in certain forms of circumscribed and partly encysted tumours, the use of the bistoury is advisable.

ALCOHOL IN PHLEGMASIÆ.—M. Gubler, writing in the *Bulletin de Thérapeutique*, criticises the opinions of Todd, Anstie, Brinton, Béhier, Stokes, Salter, and makes the following observations:—Alcohol must not be given indiscriminately in all forms. Alcohol is injurious in acute intense inflammatory fever, in which the pulse is quick and the temperature high, in which there is an excess of respiratory (!) combustion, and abundance of urea and products of denutrition in the urine. In such a case the patient desires to be cool, and objects to wine and food, and the physician should obey the natural instinct displayed. But in those cases in which an opposite set of conditions exists, in which the urine contains little urea, much uric acid and fatty matter and albuminous substances, alcohol is most valuable in

giving assistance to the latent forces, or in absolutely yielding force to the exhausted nervous system.

SUBCUTANEOUS INJECTION OF MORPHIA IN ASTHMA.—Professor Hirtz has lately had some cases of asthma (essential), in which the subcutaneous injection of morphia produced the most marvellous results. He admits that it has not cured the disease; but he asks whether, by repeatedly preventing the attacks by the employment of morphia hypodermically, he may not do much to remove what he calls the *tendency* to the affection.

IODOFORM IN ULCERATED CANCER OF UTERUS.—M. Voelker recommends the employment of suppurations containing about one part of iodoform to twenty of cacao butter, introduced into the uterus. When the inflammatory stage is passed, this, he alleges, will be found to give much relief.

CANNABIS INDICÆ IN SENILE CATARRH.—Dr. J. Curran Waring writes to us to say that he has found cannabis an invaluable remedy in catarrhus senilis. He administers it in ten-minim doses gradually increased, and suspended in mucilage. Its effects, he says, must be seen to be thoroughly realized. He believes that as an anodyne it is immensely superior to every other drug.

LARGE AND SMALL LEECHES.—In the *British Medical Journal* (May 9th), Dr. J. Addington Symonds calls attention to a point in practice which it would be well for the junior practitioner to bear in mind. It is that in applying leeches to children we should remember the difference between a large leech and a small one. A large leech has a large mouth, and leaves a much larger and more gaping wound than a small one.

THE FRENCH ACADEMY'S PRIZE FOR ELECTRO-THERAPEUTICS.—The subject chosen by the Academy for the "Prize of Medicine and Surgery for 1869" is "The Application of Electricity to Therapeutics." The following points are to be especially dwelt on:—(1) The electric apparatus employed, their mode of application, and their physiological effects. (2) The analysis of the facts already published on the application of electricity to disease, and especially to the nervous, muscular, vascular, and lymphatic systems. Also the verification by new researches of the results already attained, and the determination of the cases in which it is necessary to supply the interrupted or continuous current. The value of the prize is 5,000 francs. The essays must be written in French, and should be forwarded to the Secretary of the Institute before the 1st of June, 1869.

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THE PRACTITIONER.

AUGUST, 1868.

Original Communications.

BENEFICIAL EFFECTS OF QUININE IN SO-CALLED INTERMITTENT HÆMATURIA.

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and Morbid Anatomy in King's College, London.*

SOME interesting cases of this affection have been recently reported by Dr. Harley and Dr. Dickinson in the Forty-eighth Volume of the Transactions of the Medico-Chirurgical Society, 1865. In the present communication I propose to refer briefly to another instance in which benefit seems to have resulted from the use of occasional mercurials with large doses of quinine. In two of the cases recorded by Dr. Harley relief was afforded by the same plan of treatment. I shall also take the present opportunity of referring to one or two points bearing upon the pathology of this remarkable affection.

It is necessary to remark, in the first place, that the urine in these cases does not contain blood; and although in published reports it has been stated over and over again that the deposit appears like "pure blood,"—that the "blood" in the urine has increased, or is less, &c. &c.—it has not been proved that a single drop of blood was actually present. Many who have written upon this affection appear to have felt so certain of the presence of blood that they considered it unnecessary to make any

careful examination of the deposit. They have been entirely misled by the colour and general characters of the deposit. In not one of the five or six cases which have fallen under my own observation have I been able to detect blood-corpuscles by the most careful microscopical examination, and the quantity of albumen in the fluid has been invariably much less than would have existed had the deposit consisted of blood-corpuscles. Moreover, it has been shown by George Harley, that the albumen is not the albumen of ordinary blood serum. It is therefore improbable, that in these cases there is any hæmorrhage as in acute inflammation of the kidney, and they ought not to be spoken of as cases of hæmaturia. In short, I doubt if this affection has any more connexion with hæmaturia than gout, or jaundice, or congestion of the liver. In the cases I have examined, although casts were detected in the urinary deposit, they did not exhibit the characteristic appearances of the casts familiar to us in different forms of kidney disease. They seem to consist of mere mucus, and contain no cells of renal epithelium, blood-corpuscles, or other bodies derived from the uriniferous tubes. The dark granular character frequently seen completely disappears on exposure to a gentle heat, proving that it is due to the presence of urates rich in colouring matter which have been deposited upon, and in the substance of, the casts.

The remarkable periodic character of the attacks has naturally suggested the employment of Quinine in these cases, but in many the remedy seems to have exerted no very decided influence. In a case, however, which has recently been under the observation of Dr. Peregrine and myself, much benefit has unquestionably resulted from the use of Quinine in six-grain doses. As our patient is a member of the profession, I have requested him to express his views on the matter. He tells me that he caught a violent cold in September 1866, and that ever since he has been in imperfect health. He experiences frequent attacks of chilliness, with coldness and numbness of the feet, and actual pain or mere uneasiness in the loins. His skin has been slightly dusky, and there has been a little sallowness. The circulation is generally feeble, and the heart's action weak. In June 1867, he suffered from two feverish attacks, ushered in by a

feeling of intense coldness. During the August and September following he noticed at times a dark sediment in the urine. The first occasion on which the quantity of deposit was considerable was after prolonged exposure to wet mist on a glacier in Switzerland, in September. There was violent shivering, and blueness of the hands and feet. During the autumn and winter he says, "I continued out of health, weak and anæmic. Daily the urine became intensely loaded and scanty from noon till six, pale and copious at other times. Usually one day in three or four some dark brown stuff passed about the time above-mentioned, never otherwise unless from exposure to cold. I improved in health, but was no better as regards the urine till the end of March, when I began to take Quinine, which put an immediate check to the symptoms, and has now virtually suppressed them."

In these cases there is generally abundant evidence of hepatic derangement, and many circumstances render it probable that the liver is more at fault than the kidneys. In some instances the affection appears to be connected with gout, a malady which is without doubt due in some measure to disturbed action in the liver. The brown colour present in the urine may possibly result indirectly from disintegration of blood-corpuscles (as the blood accumulates in the capillaries of the liver), and the excretion of the dissolved colouring matter in an altered form by the kidney. It must be borne in mind that brown granules are found in the renal cells in these cases, just as biliary colouring matter and solid brown and yellow particles exist in the cells in cases of jaundice. It seems, therefore, more probable that the bulky brown deposit is secreted by the agency of the renal epithelium, than that it is a product of the disintegration of blood which had become stagnant in the capillaries of the kidney or in the uriniferous tubes. Perhaps the disease is after all more closely allied to ague than to any affection of which hæmaturia is a symptom.

ON THE EMPLOYMENT OF PHYSOSTIGMA (CALABAR BEAN) IN THE TREATMENT OF TETANUS AND CHOREA.

BY THOMAS R. FRASER, M.D., F.R.S.E., M.R.C.P.E.

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OUR knowledge of the physiological action of physostigma on the lower animals is now pretty complete, and some valuable information has been acquired of its effects on man. The time appears to have arrived when advantage may be gained by an examination of some of the therapeutic applications of this remedy. It is true, that until we possess an exact knowledge of its effects on man it cannot be expected that its therapeutic value will be fully recognised, but I believe that the facts we already possess are sufficient to guide us in estimating its value in the two diseases which form the subject—in this relation—of the present communication, and, probably, also in other diseases in which an abnormal activity of the motor nerve system is present.

Tetanus.—Such an examination is especially called for in the case of tetanus, as the employment of physostigma in the treatment of this disease was so naturally suggested by the method of its action, that, since its recommendation for this purpose, it has been employed in a considerable number of cases and with a success that warrants, and almost requires, further trial. The unfortunate fatality of tetanus, and the insufficiency of the methods of treating it, render it especially proper to examine the claims of any remedy which is recommended for its cure. It is, besides, a disease which does not appear to be necessarily connected with any important lesion, and hence the prospect of

devising some efficient plan of treatment is extremely encouraging.

Tetanus appears to be, essentially, a disease characterised by an exaggeration of the reflex function of the medulla spinalis, medulla oblongata, and certain lobes at the base of the brain. A close analogy exists between it and that condition of exaggeration of reflex excitability which is produced by the action of strychnia. This supports the idea that, although tetanus may be often due to appreciable lesions of the central nervous system, either connected with, or independent of, irritating diseased conditions of the peripheral nerves, it may also exist without any discoverable central lesions.¹ Exaggeration of the reflex function of the central nervous system, resulting in spasmodic contractions, appears to constitute its essential character. Hence its most successful treatment seems to have been by the employment of such means as remove the condition of exaggerated reflex excitability, or oppose its manifestation. Warm baths, sudorifics, and the application of ice to the spine have been used at various times and with varying success; and numerous cases have been recorded in which sedative drugs were used, such as opium, aconite, belladonna, tobacco, and curare, and the active principle of these. None of these drugs has, however, produced such successful results as to become the established remedy for tetanus. A presumption of success might be supposed to exist in favour of several of them, and perhaps more especially in favour of those which powerfully impair and destroy the conductivity of motor nerves, such as belladonna and curare, or of those which combine a somewhat feeble paralysing effect on motor nerves with a more decided paralysing action on voluntary muscular fibre, such as tobacco; but they fail in this, that none of them possesses a primary and energetic sedative action on the diastatic function of the spinal cord. Opium, in certain circumstances, produces this effect, but it cannot be

¹ Jacobowitsch, Roudanowsky, and others have attempted to prove that the tetanic spasms of strychnia are connected with definite and appreciable lesions in the spinal cord. Vulpian has, however, refuted this statement by a variety of ingenious arguments, one of the most striking of which is derived from the demonstration that extreme strychnia symptoms may continue in a cold-blooded animal for upwards of a month, and still no lesion of the nerve-centres, except hyperæmia, be discoverable at death. (*Archives de Physiologie*, No. 2, 1868, p. 306.)

looked upon as one of its primary or leading actions, and it is complicated and even opposed by its other actions ; for, with the exception of narceia, all the opium alkaloids produce more or less marked convulsant effects. It is probable, therefore, that its spinal sedative action, only exceptionally observed, is dependent on the narceia, but it is doubtful if this alkaloid would be of any use in tetanus, as the powerful soporific action it is reputed to possess would obscure the effect on the spinal cord that is wished for.

Physostigma has the great advantage over all these substances of directly and powerfully diminishing the reflex activity of the cord. A description of the various data on which this conclusion is founded would occupy too much of the space at my disposal. I shall, therefore, assume that the evidence I have elsewhere published is sufficient to establish this effect of physostigma.¹ The following experiments illustrate the power of this drug to counteract the tetanic symptoms of strychnia poisoning ; and it is generally admitted that a very close analogy exists between these symptoms and those of tetanus itself.

“ I placed a small drop of solution of strychnia (Brit. Pharm.) on the back of a frog. This produced tetanus in four minutes. When a considerable dose of physostigma extract was inserted into the animal's mouth, the manipulations necessary for its introduction excited a series of violent emprosthotonic spasms. Four minutes after the Calabar bean was exhibited, a decided diminution occurred in the frequency and severity of the convulsions ; and, in nine minutes, they had lost their tetanic character. In forty minutes, it was difficult to excite even a faint reflex movement by pretty strong galvanism of any part of the body ; and, soon after, reflex action had completely disappeared, even when the exposed sciatic nerves were galvanised.”²

The part which physostigma played in counteracting the tetanic effects of strychnia, may be readily shown by comparing this experiment with one in which the strychnia effects were not interfered with.

“ A frog was selected of the same weight as the last, and in every other respect as nearly resembling it as possible, and a

¹ Transactions of the Royal Society of Edinburgh, vol. xxiv. part iii.

² Loc. cit., p. 740.

small drop of solution of strychnia (Brit. Pharm.) was placed on its back. Tetanus occurred in four minutes; and violent convulsions of a tetanic character followed each other at intervals, and could be excited by the slightest touch, during the next six hours, after which the observations were stopped.”¹

In addition to this paralysing action on the spinal cord, physostigma diminishes and even destroys the conductivity of motor nerves. It thus includes among its therapeutic properties that which has recommended curare as a remedy for tetanus. It is, therefore, peculiarly suited to counteract such convulsive movements as result from an exaggeration of the reflex function of the spinal system. It is true, that it does not influence the afferent, or sensory, nerves, and probably its value would be enhanced if it diminished the activity of these. This effect might especially be valuable in such cases of tetanus as manifestly depend on an irritation of peripheral nerves. But there can be little doubt, that in these the primary irritation constitutes but a portion of the disease. The symptoms prove undoubtedly that the spinal cord is sooner or later affected. Tetanic convulsions or exacerbations of existing convulsions may be produced by sudden sounds, by unexpected sights, or by gentle touches of any portion of the skin, proving the existence of an abnormally excitable condition of the reflex centres, the result, possibly, but now independent, of persistent irritation localised in an injured afferent nerve. It cannot be ignored, however, that a persistent local irritation may occupy a position of such importance in the disease as either to interfere greatly with the prospects of successful treatment by such a remedy as physostigma, or altogether to prevent success. Several cases have been recorded where tetanus has followed injuries and surgical operations, and where important nerve lesions have afterwards unmistakeably indicated its cause. No great benefit can rationally be looked for in these cases from the employment of any drug. A necessary preliminary must always be the discovery of the lesions and their removal by surgical means.

Shortly after the first recommendation of physostigma as a remedy for tetanus,² a French practitioner, M. Lemaire, employed

¹ Loc. cit., p. 740.

² Section iv. of the Author's Graduation Thesis, 1862; printed in the *Edinburgh Medical Journal*, July, August, and September 1863.

it in a case of the spontaneous or idiopathic variety of the disease. This was in 1864. It appears to have been the first example of this treatment, and was fortunately a successful one.¹ In the same year, M. Giraldès, the accomplished surgeon of *l'Hôpital des Enfants* at Paris, narrated before the Surgical Society a case in which he had successfully used physostigma in tetanus. About two years after this, the value of physostigma in tetanus was successfully tested, for the first time in this country, by Dr. Eben Watson, of Glasgow,—a gentleman who deserves great credit for the ability with which he has investigated some of the physiological effects of this drug, and for the energy and skill with which he has advocated its application to the treatment of tetanus. Other nine cases have since been recorded, and these will be mentioned in the brief account I shall now give of the published experience of this treatment.

Case 1.—Spontaneous tetanus in a boy thirteen and a half years of age. The symptoms commenced a few hours after severe and prolonged exercise, immediately after which some food had been taken. Treated successfully by M. Lemaire, in 1864.²

Case 2.—This case was communicated to the *Société de Chirurgie*, in 1864, by M. Giraldès. I have seen an imperfect abstract only; 0·7 gramme of extract was given daily, and profuse perspiration was caused by the remedy. The case terminated successfully.

Case 3.—Annie W—, aged eleven years. Symptoms of trismus occurred fifteen days after a slight injury of the great toe of the right foot, and opisthotonos appeared six days afterwards. Three days after this, the treatment with physostigma was commenced by Dr. Eben Watson, and continued, with varying doses and preparations, for thirty-eight days, at which time a cure had been established. This case occurred at the end of 1866.⁴

Case 4.—John McP—, aged thirteen years. Symptoms

¹ Mr. Holmes Coote administered physostigma, during one day and a half (4th and 5th March, 1864), in a case of tetanus; but this cannot be regarded as a case of tetanus treated with physostigma.—See the *Lancet*, 26th March, 1864, p. 348.

² *Bulletin Général de Thérapeutique*, 1864.

³ *Canstatt's Jahresbericht*, 1864, Dritte Band, p. 86.

⁴ *The Lancet*, March 2, 1867, p. 265.

began nineteen days after an injury, by machinery, of the left fore-finger, and general and severe tetanus occurred two days afterwards. Three days after the first symptoms appeared, the treatment with physostigma was commenced by Dr. Eben Watson. The tincture, whose formula was recommended by the author, was used, and a cure resulted in eleven days.¹

Case 5.—E. L——, “a delicate girl of twelve years.” Symptoms first appeared a fortnight after a wound of the left thumb. They, however, disappeared after slight treatment, and during an interval of a month and a half afterwards the patient was entirely free from symptoms; but, soon after this, she was affected with severe tetanus. She recovered, after treatment with extract of physostigma for about four weeks. This case is recorded by Dr. A. Campbell, and it occurred at the commencement of 1867.²

Case 6.—M. A——, aged nine years. Faint contractions of the muscles of the face occurred eleven days after a severe injury of the right knee-joint. The limb was amputated on the following day. Tetanic symptoms, chiefly confined to the muscles of the face, neck, and back, supervened, but opisthotonos did not occur. The patient died four days after the amputation, and during this period physostigma was administered. This case is reported by M. Bourneville. It does not appear from the record that any of the physiological effects of the remedy were produced.³

Case 7.—J. R——, aged nine years. Pain and stiffness of the jaw occurred twelve days after a contused wound on the sole of the right foot. Opisthotonos followed two days afterwards. The treatment with physostigma was commenced immediately after the latter event, and it was continued for about twenty-five days, and until the recovery of the patient. The case is recorded by Dr. Watson.⁴

Case 8.—This is the fourth case for which we are indebted to Dr. Watson. I have some hesitation in placing it among the cases of tetanus treated with physostigma, for the patient was apparently *in articulo mortis* when the treatment was commenced, and only one dose was given before his death.⁵

¹ Loc. cit., p. 266.

² *The Lancet*, August 10, 1867, p. 157.

³ De l'Emploi de la Fève de Calabar, dans le Traitement du Tétanos. Par M. Bourneville. Paris, 1867.

⁴ *The Lancet*, April 4, 1868, p. 434.

⁵ Ibid. April 11, 1868, p. 464.

Case 9.—A labourer, aged thirty-three years, received a wound of the scalp by a fall, and a fortnight afterwards experienced a stiffness in the neck, accompanied with pain, and also frequent cramps in the back and limbs. About a week after this, he was admitted into Northampton Hospital with symptoms of general tetanus, and was at once treated with physostigma by Mr. Ashdown. Within twelve days he was free from all danger, and he ultimately recovered perfectly. This case is an interesting one, as it is the first, and I believe the only case, in which physostigma was administered by subcutaneous injection. It occurred during the October of 1867.¹

Case 10.—Blanche S—, aged eight years, was admitted into *l'Hôpital des Enfants* under the care of Dr. Bouchut. Slight opisthotonos appeared two days after a fall, and, in other two days, severe opisthotonos, trismus, and pleurosthotonos supervened. This case terminated fatally eleven days after the commencement of the disease. Physostigma was given during only the three days that preceded death, and this remedy appears to have produced no appreciable effect.²

Cases 11 and 12.—I have no particulars of these two cases. They occurred in the practice of M. Sée, Professor of Therapeutics in Paris, and are announced by him as cases in which cures were obtained by the administration of physostigma.³

In judging of the value of physostigma from the experience afforded by these cases, it is essential that we place aside Case 8, in which no benefit could be possibly derived from any drug, as the symptoms were too far advanced before the treatment was commenced. There remain eleven cases in which physostigma was used, and of these nine recovered and only two died. Of the fatal cases, that of M. Bourneville (Case 6) was complicated by the serious condition caused by an amputation of the thigh, subsequent on an injury of the knee-joint. Dr. Bouchut's case (Case 10) does not illustrate in a satisfactory manner the power of this remedy. It was given by the mouth in the form of extract; and, although in considerable doses, there is no evidence of any physiological effect. Besides, the

British Medical Journal, March 21, 1868.

Bulletin Général de Thérapeutique, tome lxxiv., 1868, p. 363.

³ *Ibid.* p. 279.

treatment with physostigma was commenced only four days before death, and after other means had been employed in the preceding six days of the disease.

Dr. Bouchut's case is one that shows the urgent necessity of commencing the administration of this drug as early as possible, and of boldly increasing the dose until some decided effect is produced. Physiological chemistry teaches us that muscle itself produces, during its contraction, substances that cause it to contract.¹ When the contraction is extremely energetic and continuous, these substances so accumulate as to cause a condition of persistent tetanus, independent of the nervous system for its persistence. Possibly, the continuous rigor, especially marked in the muscles of the back, and occasionally described, in fatal cases, as passing directly into the condition of *rigor mortis*, may be greatly due to this circumstance. Our knowledge of this disease teaches us that the abnormally excitable condition of the reflex centres first manifests itself in limited portions, and gradually extends until it involves their whole extent. It is, therefore, of the greatest importance to diminish the frequency of the tetanic convulsions at as early a stage as possible. This, it is only rational to suppose, will be best done by the use of a substance that diminishes the reflex excitability of the spinal cord. Physostigma possesses such an action, and the experience gained in these cases proves that it efficiently exerts it in tetanus. I extract, in illustration, the following details from the account of Mr. Ashdown's case (Case 9):—

“*October 6th.*— . . . One-third of a grain of extract of Calabar bean, dissolved in eighteen minims of water, ordered to be injected every two hours under the skin. The effect of the first subcutaneous injection was very marked. In about five minutes, the legs, which had been previously perfectly rigid and immovable, became flaccid and freely moveable by the patient; the abdominal muscles became less tense, and the arching of the spine disappeared. The pupils also contracted, and the pulse sank to 82°. The effects lasted two or three hours, and all the symptoms then reappeared” . . .

“*October 7th.*— . . . Every subcutaneous injection, which had been given regularly every three hours during the night, had

¹ Tetanus. Eine Physiologische Studie. Von Dr. Johannes Ranke. 1865.

been followed by an almost complete remission of the symptoms, lasting about two hours. . . .

"October 10th.—During the night, as the patient was very delirious, and the pulse had risen to 148,—effects supposed to depend on an overdose of the medicine,—the injections were stopped for seven hours. This morning, the vessels were as rigid as ever; and the paroxysms, which had almost ceased, again increased in frequency. The injection was ordered to be continued as before. In the evening, the pulse had fallen to 125, but the injections had been required every two hours, the effect not lasting so long as previously."¹

In the cases I have mentioned, physostigma was administered in very varying doses, and in numerous forms. Little benefit would, therefore, be derived from an attempt to establish any rules for its administration from the experience of these cases alone. I prefer to use this experience as merely a guide in preparing the recommendations I venture to make on the employment of this remedy in tetanus.

The British Pharmacopœia contains two preparations of physostigma, the powder and the extract. I think the powder should not be used, as there is considerable evidence to show that the functions of the stomach are impaired in this disease. By giving it we not only increase this evil, but we fail, on account of the comparatively slow action of the powder, in securing the important object of affecting the system as rapidly as possible. The extract should be always used, as it is the most concentrated preparation, and one on whose constancy we may rely. It may be given in the form of pill, or of solution and suspension in water (mixture), or of solution in weak spirit of sp. gr. 0.920, (thirty-two grains to the fluid ounce).² I prefer the first and last of these forms, as that with water decomposes in a few days.

Physostigma may be administered by the mouth, anus, or subcutaneously; and the special peculiarities of each case will be the best guide in determining which of these should be used. I

¹ *British Medical Journal*, March 21, 1868, p. 274.

² I prefer this tincture to one made by acting directly on the powder with spirit, as it is of unvarying strength,—a recommendation that can never be claimed for an ordinary tincture, but one which is important where large doses of an active substance are being used.

should myself feel inclined always to commence the treatment by subcutaneous injection, to repeat such injection until the system is decidedly affected, and then to administer the remedy by the mouth, in a dose three times as large as is found necessary by subcutaneous injection. Such a plan might be quite safely followed in a child of even nine years. If the remedial effects continue to be produced by administration by the mouth, it should be persevered with, for such administration has obvious advantages as far as the convenience of the practitioner is concerned. In the more severe cases, however, I believe subcutaneous injection should be alone employed. The distress and increase of spasm caused by swallowing, or the impossibility of introducing substances by the mouth, will render this necessary. I cannot, also, urge too strongly that subcutaneous injection should always be used when severe and continuous spasms occur, when a fatal result is imminent from the exhaustion caused by prolonged and frequent convulsions, and when apnœa threatens at once to close the tragic scene. By it we obtain the quickest and most powerful effects. Administration by the anus will be rarely necessary. It may, however, be employed to relieve the stomach, and will then be occasionally useful.

From the preceding remarks, it cannot be expected that any arbitrary rules of dosage can be laid down. For an adult, one grain of the extract by stomach, or one-third of a grain by subcutaneous injection will be generally sufficient to commence with. This should be repeated in two hours, when its effects will usually have passed off, and the succeeding doses may be modified according to the experience that will thus be gained. When used by subcutaneous injection, the dose of extract should be carefully mixed with ten or fifteen minims of water. This mixture has always an acid reaction, which is sometimes so decided as to produce slight irritation of the cellular tissue ; but this can be avoided by carefully neutralizing the mixture with a solution of carbonate of soda. Suppositories, made with oil of Theobroma and white wax, may be employed when administration by the anus is desired. Each of these should contain two grains of extract. For children, we must be guided by the general rule of employing, according to age, one-third or one-fourth, or even less, of the above doses. It will be found neces-

sary to repeat these doses frequently—every hour, every hour-and-a-half, or every two or three hours—and, of course, the severity of the disease and the effect of the remedy will be the best indications for this. The great object is to produce as quickly as possible, and then to maintain, the physiological effect of physostigma in diminishing reflex excitability. The doses must, therefore, be continued in increasing quantities until this physiological effect is produced, or until the sedative action of the drug on the circulation is carried to a dangerous extreme, or until constant nausea and vomiting compel us to desist.

This nausea is, I believe, due to the action of physostigma in causing energetic contractions of the stomach and intestines. To this cause may also be referred a peculiar epigastric sensation, which is one of the first symptoms of the action of this drug, whether it be administered by the stomach or subcutaneously, and which is always relieved by eructation. The catharsis that physostigma causes—probably an advantageous effect in tetanus—is another result of this intestinal contraction, though it is also due to an increase of secretion by the intestinal glands.

Another physiological effect of physostigma is excessive perspiration. This is most strikingly observed when a large dose is administered by subcutaneous injection. It may be of some importance in the treatment of tetanus, for sudorifics are vaunted as reliable remedies for this disease; but, as I am at a loss to understand why perspiration should in itself prove beneficial, I mention it only as an indication that physostigma is affecting the system.

It might reasonably be expected that the active principle of physostigma—*eseria*—should be valuable in tetanus, and especially for administration by subcutaneous injection. It is, however, an alkaloid that is very difficult to prepare, and, as far as my knowledge of its properties is concerned, it appears to be somewhat unstable. There is, besides, but little advantage in employing a more active remedy than the extract of physostigma.

In these observations, no distinction has been drawn between the traumatic and idiopathic varieties of tetanus. As far as treatment is concerned, they only differ in this, that the traumatic variety is usually the more severe and acute, and that it,

therefore, generally demands a very energetic and active employment of the remedy.

I have avoided all discussion of subsidiary measures, as these are not included in the subject of the present communication.

Chorea.—As the principal indications for the therapeutic use of physostigma have been already mentioned, its employment in chorea may be very briefly considered. Dr. George Harley was, I believe, the first to use physostigma in this disease. His case occurred at the end of 1863, and was a successful one.¹ Since then, three successful cases have been published by Dr. John Ogle;² and I have seen others in which successful results were attributable, in great measure, to the use of this drug.

The disease is one of such protean form, that it is impossible to advise the use of one remedy for all cases. It must, however, be admitted that in the great majority of cases involuntary contractions occur of such a character as to demonstrate an exaggerated condition of the reflex motor function of the cord. The want of co-ordination in the movements by which this disease is characterised, is dependent, not only on imperfect voluntary contractions, but also—and sometimes in great degree—on involuntary contractions. The latter are obviously the results of either a stimulus supplied by the exercise of volition, or of one supplied by the voluntary movements themselves, acting through afferent nerves on an abnormally excitable condition of the reflex centres. We have seen that the action of physostigma is to diminish such a condition.

The treatment of this disease will rarely require to be so active or energetic as that recommended for tetanus. Physostigma should be administered either in the form of powder or of tincture. From three to six grains of powder, thrice or four times daily, may be given to children, and from ten to twenty grains, as frequently, to adults. The Pharmacopœia does not contain a tincture, but a formula for an efficient and sufficiently active one has been published.³ It may be given to children

¹ *Journal de l'Anatomie et de la Physiologie.* 1864, p. 150.

² *Medical Times and Gazette*, Sept. 2, 1865, and January 13, 1866.

³ Take of the kernel in the form of fine powder, $\bar{3}j$; rectified spirit, $\bar{3}iij$. Place the kernel and one ounce of the spirit in a carefully covered vessel, and allow them to remain for twenty-four hours. Pack in a percolator, pour in what

in doses of from five to fifteen minims, and to adults of from twenty to thirty minims.

However promising the treatment of chorea by physostigma may appear, the experience we yet possess is much too limited to allow us to arrive at any decided opinion as to its value.

spirit may be left in the vessel, and afterwards pour as much spirit through as may be required to obtain two ounces of tincture. (Paper by Author in *Edinburgh Medical Journal*, loc. cit. Section III)

THE TREATMENT OF SO-CALLED "IRRITABLE UTERUS."

BY GRAILY HEWITT, M.D., F.R.C.P.

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NOTHING more graphic than Gooch's description of the pitiable condition of a patient labouring under that affection to which he gave the name "irritable uterus," can be well imagined; and there is little to be added under this head. But something has yet to be said as to the real nature of the affection giving rise to these symptoms, and on the important question as to the therapeutics of the disease; and I believe that we are in a position to go a few steps beyond the point at which Dr. Gooch left both the pathology and treatment of the affection.

Thus Dr. Gooch described the affection:—

"A young or middle-aged woman somewhat reduced in flesh and health, almost living on her sofa for months, or even years, from a constant pain in the uterus, which renders her unable to sit up and take exercise; the uterus, on examination, unchanged in structure, but exquisitely tender; even in the recumbent position always in pain, but subject to great aggravations more or less frequently."

Dr. Ferguson, the able editor of the collection of Gooch's writings, not long since published by the New Sydenham Society, adds little to Gooch's description in the way of elucidation of the nature or treatment of the "irritable uterus," in the "Prefatory Essay." He expresses his belief that individuals with a tendency to gout or rheumatism, or who are the offspring of very nervous parents, are more obnoxious to it. Dr. Ferguson then goes on

to say, that "another form, or rather another degree of it," has not been described by Gooch. "In this series," says Dr. Ferguson, "the purely nervous aspect of the malady is masked by some obvious change in the uterus or its appendages; but this change is by no means a constant one, either in its seat, extent, or nature. Sometimes there is a congested condition of the uterus, altering its shape into that of a retort, the enlarged and curved fundus being exquisitely sensitive of pressure. At other times the cervix, or some portion of the uterine walls, is the seat of congestion, of varying consistency and of pain. In other instances the uterus may be entirely healthy, but the pain is referred to either ovary, or to some obscure spot in the pelvis itself. I have known the same general train of symptoms co-exist with every form of uterine ulceration, and without any of them; with every degree of uterine infiltration, and without any one of them;... in a word, the local changes have been the fluctuating, the nervous affection the constant element."¹ The further remarks of Dr. Ferguson on this subject, and which extend to some length, are to the effect that local medication is not of the slightest use, and that it is extremely undesirable to encourage the patient to dwell on her sufferings; and, admitting the necessity for local treatment where "the local complications are clear and urgent," Dr. Ferguson was evidently impressed with the conviction that the care of such patients must be left for the most part to time, the exalted sensibility being evidence of a general rather than of a local disorder.

This conclusion is, it must be confessed, a most unsatisfactory one; that it is an unsound one I shall attempt to show.

In the second edition of my work on Diseases of Women, not long since published, I stated my belief "that some of Gooch's worst cases must have been really cases of flexion of the uterus" (p. 349). The matter cannot, however, end here. Further experience, together with a careful consideration of the whole matter, has led me to a more firm, and indeed a very decided opinion on the subject, and I now avow my conviction that the "irritable uterus" is nothing more nor less than retroflexion of the uterus of a marked form, that the symptoms present in the cases described by Gooch were due to the flexion in question, and that the symptoms so dependent can be made to disappear,

¹ Prefatory Essay to Dr. Gooch by Dr. Ferguson, p. xxiv.

and the patient be restored to comparative—often to perfect—health, by remedying the defect, and by restoring the uterus to its proper shape.

For a considerable time past I have been looking for cases of "irritable uterus," but I have failed to find cases in which the symptoms described by Gooch exist *unaccompanied* by marked change of shape of the organ. It did not for some time occur to me that such an acute observer as Dr. Gooch would have overlooked the existence of flexion of the uterus. I am, however, convinced that this feature in his cases of irritable uterus either escaped his notice, or that, if he did detect it, he thought nothing of it. Dr. Ferguson, his commentator, comes very near the mark, for he speaks of a congested condition of the uterus, "altering its shape into that of a retort," as having existed in some instances. This fact is satisfactory in so far as it shows that flexion of the uterus had been observed by Dr. Ferguson in association with the irritable uterus. It appears probable that Dr. Ferguson's attention having been at that period drawn more particularly to the state of the *os uteri* (as was then the fashion) in cases of disease of the uterus, the existence of flexion was only noticed when it was really so considerable as to obtrude itself, as it were, on his notice. And it is quite certain that Dr. Ferguson attached no particular importance to the flexion as a *cause* of the grave symptoms.

The evidence I have to offer, that the symptoms supposed to be due to the "irritable" uterus arise from retroflexion of the organ, is of the following kind. I have had several, I may say as many as fifty cases, under my notice at various times, in which these symptoms in various degrees of intensity have been present; the descriptions given by Gooch of some of the cases might have stood for descriptions of the cases observed by myself, but in all of my cases I have detected retroflexion of the uterus, the organ having the form of a retort, in various degrees. On the other hand, having now had a very considerable experience of uterine disease, I can say with confidence that I do not recollect to have met with a single instance presenting typical irritable uterus symptoms *unaccompanied* by the kind of alteration now alluded to. I have met with cases, it is true, where the uterus was tender to the touch, and also cases where, in addition to this, locomotion was painful, but never in the

degree so graphically described by Dr. Gooch. I know not how more conclusively to prove the truth of the ideas which I have on the matter, than by the foregoing argument.

Why, it may be asked, does retroflexion of the uterus give rise to such excessive irritability of the organ? The answer to this will be, I conceive, as follows :—The flexion produces, mechanically, engorgement of the uterus, interferes with the circulation within it, and compresses the nerves which course through its tissues. And the stretching and dragging of the peritoneum involved cannot be unimportant. It generally happens in these cases that a cursory digital examination gives an incorrect idea as to the locality of the tenderness, for when the examination is done gently it will, as a rule, be found that the cervix is hardly, if at all, sensitive, while the slightest touch on the fundus of the uterus, which is now low down and displaced, and can be felt behind the vagina, gives the acutest pain to the patient, thus showing that the sensitiveness is localized. A rough push of the finger against the *os* gives pain because the whole uterus thereby undergoes concussion.

The importance of the flexion in those cases of irritable uterus where its *existence* has been actually recognised, has been grievously underrated, in consequence, as I believe, of the doctrine and teaching of Gooch. And as the observations and remarks of Dr. Ferguson have only tended to confirm Dr. Gooch's view of the matter, it is not surprising to find, that even at the present day there is an indisposition to believe in the existence of a structural change of the organ in case of irritable uterus.

I am far from denying the importance of structural uterine lesions. But I hold that in a very large number of cases these structural changes are themselves the result of accidental alterations in the form of the uterus. Of this class of cases retroflexion of the uterus is a most marked instance. Here we have a distinct, palpable change in the outline of the uterus, resulting from a fall, a strain, or a soft condition of the organ, predisposing it to become easily changed in its form on application of a slight force. The organ becomes congested, painful, tender; motion aggravates the displacement, the pain increases, and the uterus gradually hardens, preserving the vicious shape it has thus accidentally acquired, and leaving the patient a sufferer, often—if unrelieved—for years.

Is it surprising, if such be the real state of the case, that applications of a caustic nature to the *os uteri* prove quite unavailing in removing the suffering? or is it to be wondered at that the uterus, if left in its flexed state, remains a source of perpetual discomfort to the patient?

A priori reasoning on the matter, however, would be comparatively unconvincing did it stand alone. But that what has been now put forward conveys the truth is further supported by the fact which remains to be stated, that having treated many such cases on the principle alone of reducing the flexion, I have found such treatment almost universally successful in removing the symptoms.

Of late years the question of the treatment of retroflexion of the uterus has received much attention, and, a confessedly difficult disease to cure when in the chronic stage, much has been and can be done to remedy it. The most satisfactory method of treatment, on the whole, consists in the application of pressure behind the cervix uteri, maintaining the cul-de-sac of the vagina behind the cervix in a high position in the pelvis. A modification of Hodge's pessary answers this purpose very completely. The one used by myself consists of an oval-shaped ring, the length of which varies according to the case, having a gentle curve adapted to that of the vagina. The upper part of the ring prevents the descent of the fundus backwards, and by degrees the flexion is rectified. In some cases a short-stem pessary can be worn in the uterine canal, and retained there by attaching it to the vaginal ring; but on the whole the other method is more generally applicable.

The patient suffering from "irritable uterus" then need not be consigned to the sofa for an indefinite period. By the use of a ring-pessary well adjusted, locomotion is rendered easy and painless in by far the majority of cases. The tender, irritable state of the uterus subsides gradually, and we may hope even in the worst cases to restore the shape of the organ more or less completely. The uterine sound may be occasionally used to bend the uterus, but in the worst cases it cannot be tolerated at first. Maintenance of the horizontal posture is necessary in the worst cases, during the first part of the time the patient is undergoing treatment.

ON INHALATION IN DISEASES OF THE THROAT, PARTICULARLY IN CROUP.

BY HERMANN BEIGEL, M.D., M.R.C.P.

Physician to the Metropolitan Free Hospital.

I PROPOSE to make a few remarks on the local treatment of those diseases of the larynx in which certain inflammatory conditions form the most prominent characters, and which may be successfully treated by the topical application of certain remedies. These diseases have only been made the subjects of careful study since the introduction of the laryngoscope into medical practice, and hence it has become necessary that every practitioner who intends to treat these affections should make himself acquainted, in the first place with the methods of laryngoscopic investigation, and in the second place with the local application of medicaments.

By far the greatest number of throat diseases which commonly come under our notice are of an inflammatory character, and if such a disease be situated in the pharynx, including the uvula, tonsils, and soft palate, the diagnosis will be easily made by simple inspection; but if the lesion be limited to the epiglottis, the vocal chords, or the lining membrane of the larynx, or if perhaps all these parts together be simultaneously affected, the nature of the disease cannot be discovered without the aid of the laryngoscope.

It is not my intention, however, to dwell on the methods of application of this valuable instrument, and I merely refer the reader to the works of Johnson, Gibb, Mackenzie, Türk, Bruns, and others.

Croup is one of those inflammatory diseases in which, at an early period, we are enabled to do much good, and to save the patient's life, by the timely application of proper remedies; but in which a short delay may very often prove fatal. At the same time it is a disease very liable to be mistaken for another not less fatal, viz. diphtheria.

Attempts have been made, especially by French authors, to prove that these two diseases are identical; but every observer who has had ample opportunity for the close observation of both affections, will be at a loss to understand how such an attempt could be justified. It is a well-known fact that diphtheria generally commences in the tonsils, and extends thence into the larynx, forming a false membrane, which is so closely adherent and even interlaced with the normal tissues that an attempt to remove it brings away small shreds only, with adherent portions of the mucous membrane, thus leaving a rough, bleeding, and painful surface. In croup, on the other hand, although a false membrane is likewise formed, it is not adherent to the subjacent surface, but merely lying upon it, so that it may not unfrequently be expelled by the effort of coughing, in the form of a mould of the parts on which it has been formed. It is well known that in this manner not only a complete cast of the larynx, but also of the ramifications of the trachea and its branches, may be ejected. Much importance was formerly attached to the sound attending these fits of coughing, which has been described as barking, crowing, &c.; but no great reliance can be placed upon these signs, since they may be produced in many affections of the larynx. The most important fact, however, which distinguishes these two diseases, is the general or constitutional character of diphtheria, and the purely local nature of croup. This point is well illustrated by what occurs in the treatment of these affections: suppose that in either of these cases tracheotomy has been performed, in diphtheria the progress of the disease is not only not checked, but the wound inflicted often takes on the diphtheritic character, whilst in croup this complication has never been observed, and we may very often save the patient's life by performing this operation at an early period.

In determining the value of the treatment of diseases of the

throat by means of inhalation, much will depend upon the proper selection of an apparatus adapted to the nature and situation of the affection, as I have endeavoured to show in my work on this subject.¹ Inhalation cannot be considered as constituting of itself a system of treatment, but merely as a means for the local application of certain remedies, which has proved successful wherever a fair trial has been accorded to it.

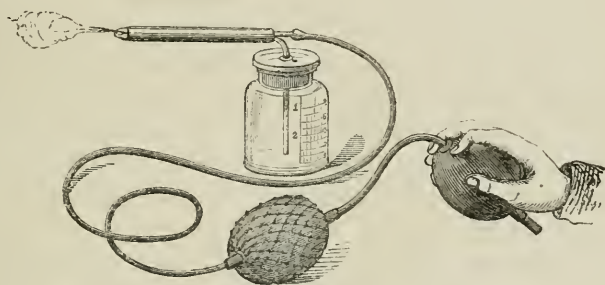
Even after the long-continued debates and experiments in the French Academy of Medicine had settled the question, whether or not atomized fluids penetrate into the larynx, trachea, and lungs, doubts were entertained on this subject by high authorities, both in this country and in Germany. I may mention the name of Virchow, who raised objections on the ground, that in people long employed in factories, and breathing air charged with fine dust of various kinds, no particles of this dust could be found in any of their air-passages on post-mortem examination. These doubts have, however, been recently removed by Professor Zenker of Erlangen, who has published a number of cases in which snuff and different coloured powders have been found in the lungs of workmen employed in workshops in which such particles have been mixed with air. Since this Virchow has acknowledged the correctness of this view and the error of his former opinion. I am induced to draw special attention to these facts, in consequence of patients of mine, who have received benefit from this treatment, having been subsequently told by eminent members of the profession, that it is impossible that any advantage can be derived from this method, as no atomized fluid can ever enter the larynx.

From the remarks I have just made it is evident that the use of inhalation does not exclude treatment by the internal administration of remedies, whenever it becomes necessary; but this does not belong to my present task. I shall therefore pass on, at once, to the description of the requirements of an efficient inhalation apparatus.

The instruments in general use may be described under two heads, viz. those worked by steam, and those worked by compressed air. The first kind is most conveniently employed

¹ On Inhalation as a means of Local Treatment of the Organs of Respiration by Atomized Fluids and Gases. London: Robert Hardwicke. 1866.

when the patient is feeble, and when the fluid is not required in too concentrated a form ; but the inconvenience connected with the instrument consists in the admixture of steam with the fluid, so as to render it impossible to determine the exact dose administered. Whenever, therefore, the general health of the patient admits, or when the apparatus is to be worked by a second person, or when the remedy is to be applied to children, that variety will be found most useful which is worked by compressed air. The most simple form of such apparatus is that devised by Dr. Bergmann, and improved by Dr. Andrew Clarke, generally known as the hand-ball atomiser. This instrument, when supplied with a tube as suggested by Professor Winterich, deserves the preference over all the other forms.



The addition of this long tube causes the spray to be generated at the back part of the patient's mouth, and thus enables it to be applied more locally than is otherwise possible. Messrs. Meyer and Metzler, of Great Portland Street, manufacture similar tubes of vulcanite, which are not so liable to be broken as those of glass, and are equally unaffected by corrosive liquids. This is the instrument which I generally employ in cases of inflammatory affections of the throat and windpipe. The above woodcut represents this inhaler, the action of which does not require any explanation.

The substances employed in the treatment of inflammatory affections of the throat are astringents and caustics—viz., tannin (in solutions containing from 2 to 10 grs. to the fluid ounce), sulphate of zinc (of the same strength), perchloride of iron (5 to 15℥ to 1 fl. oz.), alum (1 to 5 grs. to 1 fl. oz.), and nitrate

of silver ($\frac{1}{2}$ to 5 grs. to 1 fl. oz.). In simple catarrhal diseases inhalations of turpentine, and more especially of the vapour of chloride of ammonium,¹ are of great service. The latter mode of treatment has rendered me great service in those cases in which an inflammatory state of the vocal chords, or the mucous membrane lining the larynx, has caused partial or total loss of voice in such persons as are obliged to use their organs of voice and speech to an inordinate degree, as clergymen, singers, actors, &c. At the end of last year a clergyman was sent to me whose voice was not only hoarse, but became entirely inaudible at each attempt to raise it to a high pitch for any length of time; the laryngoscope examination showed nothing but an inflammatory state of the vocal chords and the lining membrane of the larynx; much mucus was secreted, and a constant tickling felt in the throat, which gave rise to an uninterrupted cough. After many remedies had been employed and the local application of astringent solutions had failed, I advised inhalation of the chloride of ammonium, which after four weeks restored the voice to its full strength and vigour, and enabled the patient to perform his duties, which he had been unable to do for many years.

With regard to the different application of caustics and astringents in these cases, the following general indications may prove useful. We very often meet with cases in which the amount of irritation does not seem to be in proportion to the intensity of the inflammation. This is particularly the case where the disease is of long standing, and when the inconvenience caused is rather distressing than painful: a small amount of mucus is secreted, which is of a viscid character, and can only be expectorated with difficulty, thus producing a constant cough, which is increased by every attempt to speak or sing. Such cases do not bear astringent applications, under the employment of which the symptoms generally increase. The reason of this is obvious: the mucous membrane being chronically inflamed, and its nerves in a state of constant irritation, a kind of irritability is established, which by the local application of a stimulant is merely increased, whilst a solution of caustic, by destroying this chronic irritability and altering the nature of the

¹ See paper by the Author on this subject in *Lancet*, vol. ii. 1867, p. 512.

inflammation, gives as it were a new vitality to the relaxed organ.

The same may be said of the opposite state of acute inflammation of the pharynx and larynx : here the irritation exists in a very high degree, and, unless some strong caustic agent be applied, no improvement can be effected ; astringents, as well as weak solutions of caustic, adding merely to the irritable state without being able to arrest its progress. This is simply the same principle upon which the abortive treatment of inflammations of other mucous membranes is practised, as in conjunctivitis or in the case of the urethra in gonorrhœa. I could refer to a large number of cases supporting this view, which in private practice, as well as in the hospital, have come under my notice.

The so-called ulcerated throat is very often not so painful to the patient as it is disagreeable to his friends from the foetid character of his breath ; and it is generally this symptom for which, in private practice, the practitioner is consulted by patients, who usually attribute the cause to the stomach or to the lungs. This error may, moreover, be easily committed by the medical adviser if the patient be not carefully submitted to thorough laryngoscopic examination. I have myself known a lady who had been treated for some considerable time for disease of the lung, the only symptom present being a very unpleasantly foetid condition of the breath, together with a slight cough ; her friends were naturally much alarmed, but on careful examination I could detect no sign of any disease of her respiratory organs. I found, however, that several ulcers had existed in the posterior wall of the pharynx, which secreted freely, and thus gave rise to the foetor described. Repeated applications of a solution of chloride of lime in an atomised state produced a more healthy condition, and at the same time destroyed the smell ; the ulcers healed rapidly. Such ulcers often cannot be so easily detected as in this case, either from their position, or from the smallness of their size. When on the upper surface of the soft palate or within the arches of the fauces, close inspection is necessary for their detection, and no application is so convenient as that of the medicated spray. Such cases of long-standing inflammation, accompanied by ulceration and the production of mucus, are particularly well suited for treatment by astringent solutions

applied in this manner. Some cases of obstinate ulceration of the throat, accompanied by fœtor of the breath, which do not yield to other treatment, may prove manageable when treated with inhalations of carbolic acid. This remedy may either be employed as spray, fifteen minims of the concentrated acid being added to one ounce of water, or by inhalation, for which purpose the inhaler which I introduced for inhalations of oxygen, and which is sold by Robbins, of Oxford Street, is well adapted.

In croup I combine, wherever it is possible, as I do in other diseases of the organs of respiration, internal treatment with inhalations, or apply them alternately as the case may be; but very soon the little patients are either unfit or unwilling to swallow, and sometimes persist in their refusal very obstinately: here atomised fluids and vapours therefore are of particular value for two reasons; firstly, because some children who refuse medicine, look at the atomiser as a kind of toy, and willingly submit to its action; secondly, because there is no difficulty, in case of need, in forcing a child to expose his pharynx and larynx to the action of the remedy, as the very act of screaming is very favourable to the entrance of the spray into the air-passages. The remedies employed by different physicians are the following:—

1. Bromide of potassium was first used in the atomised state in this disease by Dr. Schnitzler. In one of his cases, a boy, three years of age, was severely attacked, and his breathing became difficult in the extreme; in order to gain at least some momentary relief, large doses of tartar emetic were given without producing vomiting, and inhalation was merely tried as a last resource; a solution of bromide of potassium, five grains to the ounce, was applied in the form of spray, and its use was followed almost immediately by the expulsion of shreds of false membrane. The breathing became easier, without stertor; the child felt relief for two hours, when it relapsed to its former condition. It was subsequently relieved five times under the same circumstances; and although the relief felt was considerable, the progress of the disease could not be arrested at this stage. In other instances the same drug (ten grains to the ounce) was employed with success. I have myself tried this remedy at an early stage of this disease, and found the symptoms arrested.

2. Tannin has been strongly recommended, both in croup and diphtheritis, by Barthez and Trousseau. The solution applied contained five per cent. of tannin; each inhalation lasting from fifteen to twenty minutes. After several repetitions of this, large pieces of false membrane were ejected, and the breathing relieved. In some of these cases the voice was very hoarse, nearly inaudible, but was restored in consequence of the application of the atomiser. These authors state particularly that no difficulty whatever was experienced in applying the spray.

3. Lime-water has been found useful by many authors, who attribute to the agent the power of dissolving the pseudo-membranes, both of croup and diphtheria; in the latter disease it has found a strong advocate in Dr. Geiger of Philadelphia. In croup I was myself enabled to try it in several cases, in one of which it relieved the child in the course of twelve hours after other inhalations had been employed without producing any marked improvement. Professor Biermer speaks likewise strongly in favour of this remedy. It is used in the proportion of one part to thirty parts of water, each inhalation lasting about a quarter of an hour, and to be repeated every two hours as long as bad symptoms are present.

4. Watery vapour has been recommended by MacIntosh for croup as well as for bronchitis. The same has been used by Budd, who combined it with the administration of emetics.

5. Oxygen has been recommended by Dr. Miquel. His patient was a little boy, twenty-one months old, who was suffering from croup: respiration abrupt, stertorous, whistling, and irregular, numbering forty times in the minute; pulse small, very frequent, so as not to be counted; face and lips livid; the child's expression anxious; the patient was so exhausted as scarcely to be able to cough, and when he did so it was with a low barking voice. A large number of remedies were employed without success, while the administration of oxygen restored the child to health.

On reviewing these different remedies, it may be remarked that whenever we are called upon to act in cases of croup, it would be advisable to apply, in the first instance, the medicated sprays, these being very easily obtained, and the apparatus being always in readiness. The drugs above-mentioned I would from my own

experience arrange in the following order, in respect to their value: first, lime water; second, tannin; third, bromide of potassium.

I need not repeat that, with these, the administration of emetics or other remedies may and must be combined if considered necessary. The vapours and oxygen are not equally simple in their administration, and therefore can be applied only in those cases in which a suitable apparatus may be obtained. For the production of steam, an apparatus may readily be extemporized by holding a funnel over a vessel of boiling water, the patient inhaling through the tube of the funnel.

Rebiews.

Das Chinin in den Krankheiten des Kindlichen Alters. Von Dr. C. BINZ. 1868.

(*Quinine in Diseases of Childhood.* By Dr. C. BINZ.)

WE are glad to see that Dr. Binz continues his researches on the effects of quinine. While in a former valuable essay¹ he gave the results of his experiments on the antiseptic and antipyretic influences of quinine, in the paper before us he communicates his clinical experience on the therapeutical effects of quinine in the diseases of childhood. In a kind of preface Dr. Binz endeavours to refute the general idea that the action of quinine in malarious affections is due to its influence on the nervous system, and ascribes its effects to its power of directly checking the zymotic processes occurring in the blood. While we are, by no means, inclined to deny this immediate antizymotic and antiseptic action of quinine, we are not prepared to regard, with him, *all* the nervous phenomena of fever simply as the *effect* of the chemical changes in the blood, but we consider the latter as, to some degree, due to the morbid action of the nerve-centres. If we grant that in zymotic diseases the first morbid impulse is given by the introduction of a poison into the blood, it does not follow that all the further changes in the blood depend on the immediate chemical action set up in the blood, independently of the nervous system; but it appears to us probable that these further changes, and the rise of temperature depending on them, are to a great degree the effect of the nervous system influenced by the poison introduced into the blood. The fact that the same phenomena which are seen in zymotic diseases (great elevation of temperature, excessive frequency of pulse and respiration, &c.) may be produced by mechanical injury of the cervical portion of the spinal marrow, is of great importance in the explanation of the phenomena of zymosis.

Whether, however, quinine exercises its influence in febrile diseases through the agency of the nervous system, or by its immediate effects on the composition of the blood without the

¹ Experimentelle Untersuchungen über das Wesen der Chininwirkung. Von Dr. C. Binz. Berlin, 1868.

intervention of nerve action, we hail Dr. Binz's papers as an indication of progress towards a rational *Materia Medica*, however distant the prospect may be. His experiments on the arrest of fermentation, and on the destruction of low organisms by quinine, and on the hostile influence of the same substance to the inflammatory activity of the white blood-globules, deserve our highest appreciation.

In the present essay he gives us some instances where comparatively large doses of quinine have evidently caused a reduction of pyrexia in inflammatory conditions of children. He especially endorses Pollitzer's observations on the diminution of febrile heat by quinine in pleuro-pneumonic affections of children. We have ourselves repeatedly seen cases where the administration of large doses of quinine in pneumonia and broncho-pneumonia, as well in children as in adults, has effected a marked reduction of pulse and temperature, before the real crisis and natural defervescence took place; and we can also corroborate his experience, that the irritability, the restlessness, and sleeplessness so frequently observed in bronchitic and pneumonic affections of children, are favourably influenced by quinine in full doses.

Binz inclines to the view, that an attack of pneumonia may be considerably checked in its development by the *early* administration of large doses of quinine, and he ascribes this to its influence on the white blood-globules and their transformation into pus; to this same influence he attributes the favourable action of the remedy in cases of chronic laryngitis and bronchitis with excessive muco-purulent expectoration, as it occurs for instance after whooping-cough.

The author further strongly recommends quinine in infectious diseases on account of its antizymotic and antiseptic qualities. He has not yet been able to try it in measles and scarlet fever, but he has succeeded in shortening the attacks of whooping-cough. In typhus and typhoid fever the antipyretic effect of large doses of quinine has been ascertained by many other observers, and is the subject of further investigation as well here as abroad.

Dr. Binz considers also quinine as useful in various digestive derangements, some of which are connected with morbid fermentation and the development of low organisms, as certain forms of diarrhoea and vomiting in children. He finally quotes the authority of Briquet, Guersant, Baudeloque, and Blache, that quinine is well borne by children in doses of from 10 to 30 grains per day; and we can add our own testimony that in acute rheumatism of children we have repeatedly given from 6 to 24 grains per day, and that while giving it we were able to reduce very considerably the quantity of opium previously given,

and that we have not met with any unfavourable symptoms arising from its use, excepting perhaps in some cases a kind of transitory collapse (paleness, sensation of anxiety, a frequent and small pulse, delirium), a more or less marked incident of almost all cases of rather sudden defervescence.

In taking leave of Dr. Binz's pamphlet we sincerely thank him for his well-directed effort to attract more general attention to the use of quinine in the treatment of the diseases of childhood.

Die Blausäure. Physiologisch Untersucht, von W. PREYER. In Zwei Theilen. Erster Theil. Bonn: Verlag von Max Cohen und Sohn. 1868.

(*Physiological Researches on Prussic Acid*. By W. PREYER. In Two Parts. Part I. Bonn, 1868.)

THE writer of this important treatise remarks, in his preface, that the physiological action of hydrocyanic acid has remained so imperfectly known chiefly because, till very lately, the normal physiological processes were so imperfectly understood. With improved modern physiological ideas he believes we are in a position, at least, to give the true key to the action of this substance in the organism. M. Preyer had already published two very valuable papers,—one on the effects of hydrocyanic acid and cyanide of potassium on the colouring matter of the blood, and another on the cause of the poisonous action of these drugs,—which are appended to his present treatise. In the second of these papers (published originally in Virchow's "Archiv") he brought forward a large mass of evidence to show that prussic acid poisons by removing the oxygen from the blood (asphyxiates, in short), but it does not itself combine with the oxygen; and what was of far greater importance, he showed that artificial respiration immediately applied was, at least very frequently, *a perfect remedy for prussic acid poisoning*.

In the present treatise the subject is worked out in much greater extent and completeness. By a series of ingenious arguments and experiments, the author arrives at the following most important conclusions. In comparatively moderate, but yet fatally poisonous, doses, prussic acid acts by very suddenly and completely depriving the blood of its oxygen, the phenomena being only an exaggerated and intensified representation of what occurs when (as in the experiments of J. Rosenthal) an animal is made to breathe unmixed hydrogen for some time. Supposing the poisoning to have been accomplished, then, by a comparatively moderate dose, resaturation of the blood with

oxygen, if it can be quickly enough accomplished, will infallibly restore the animal to life, and Preyer believes that no secondary ill-consequences of any kind result. On the other hand, prussic acid, given in *very large* doses, has another and quite independent action which is absolutely fatal, viz. it paralyses the heart. When this has once occurred, oxygenation of the blood has no restorative power at all,—the case is quite hopeless. There remain open, therefore, for consideration, with a view to treatment, only the cases in which there is apnoea, but the heart is still beating; a very numerous class, however, among the cases of accidental or suicidal poisoning which the physician is called upon to treat. Now the saturation of the blood with oxygen, directly, by any ordinary process of artificial respiration, or insufflation of the lungs with oxygen, is too slow and difficult to be practically useful in the human subject. Under these circumstances, M. Preyer has cast about to find a true physiological antidote for prussic acid, and he was led to believe that what was wanted was an agent which (without producing any other important poisonous effects) would paralyse the peripheral branches of the vagus in the lungs and in the heart, and, on the other hand, stimulate the central nervous apparatus of respiration in such a manner as to produce rapid respirations. He now makes the very important announcement, that sulphate of atropine acts precisely in this way, and that by a number of experiments on rabbits and guinea-pigs he has demonstrated that the subcutaneous injection of a very small dose of this agent, if performed pretty quickly after the ingestion of the prussic acid, is *an unfailing antidote*. Apparently he would recommend the injection of quite small doses ($\frac{1}{75}$ grain?).

We shall await, with very great interest, the publication of M. Preyer's further researches on the antidotal treatment of prussic acid poisoning, and also on the therapeutic uses of hydrocyanic acid.

The Principles of Organic Life. London: Robert Hardwicke, 1868.

THE author of this work has deprived us of the pleasure of making his acquaintance. He has not published his name, but, like the cuttle-fish, has obscured himself in a very unpleasant squirt of ink. He may be a nice man, but he is certainly one of those who have very nasty ideas, as the reader will freely admit when he has glanced at his book. The "Principles of Organic Life" is the somewhat anomalous title of a tedious and clumsily written volume, intended to demonstrate that man is a locomotive dung-heap, a walking cesspool. The author has

ridden his hobby beyond the limits of intelligibility and common sense, and has given us a counterblast against purgatives which is as ridiculous in its way as some of the things in Molière's celebrated satire. That we may not be accused of exaggeration let us quote a passage or two from the Preface :—

“As, however, the gaseous vapours from the manure of the soil are absorbed by vegetation, and as plants do not possess organs for storing them, they are immediately used and disposed of. Not so with animals, for no animal who eats, digests, and absorbs is free from the defecating process which is the natural result; and hence we see a storing organ provided for the purpose, and being provided we cannot say that this is only a reservoir, or its contents useless, awaiting only the animal's convenience to get rid of it. It is much more than this. It answers to, and corresponds with, what the earth and its stores do for vegetation; and no other philosophy can exist on the subject, than that the animal is compelled to carry its own manure about with it, the gases from which are just as useful and necessary to its existence as the gases from manure are to vegetation.”

What other excuse than that of utter lunacy can be offered for the promulgation of such an hypothesis as this? Is it conceivable that any rational, sane, and educated member of our profession could lend his voice to the support of a dogma which is at once so opposed to all the facts of chemical and biological science, and so utterly at variance with the experience of even the most sceptical practitioner? It would be idle to take any notice of so filthy and absurd a doctrine were it not urged as the basis of a system of therapeutics, and urged with a skill and ingenuity seldom met with beyond the precincts of a mad-house. However gratifying it may be to see the old practice of drastic and clyster becoming extinct, it would be but a poor release were we to drift into such a reaction as that which is indicated in the loathsome notion which the author of the “Principles of Organic Life” seems to have got into his brain, or whatever holds the place of that useful organ. The book is an example of the gross dogmatism which comes of insufficient scientific training and a Bœotian ignorance of scientific facts. It is unnecessary therefore to oppose argument to the extravagantly fatuous assertions laid down in this work. It may, however, help to guide our readers to an estimate of the author's capacity to deal with his subject, if we state that plants do *not* live on the gases exhaled by manure, as Liebig has long since shown, and that therefore the whole analogy suggested falls at once to the ground.

On the Action, Use, and Value of Oxygen in the Treatment of various Diseases. By S. B. BIRCH, M.D. Second Edition. London: Churchill, 1868.

It is more dangerous to a doctrine to prove too much in its favour than too little, and it is, in our opinion, exactly in this direction that Dr. Birch has erred. The subject that he has taken in hand is many-sided and of vast extent, and it would have been better to have approached it from one or two points than to have tried to compass it entirely. There is much to be said as to the *à priori* therapeutic importance of oxygen, but there is still more to be made out by patient physiological and clinical research. We would find fault, therefore, with the author for endeavouring, in the small volume he has given us, to lay down his conclusions with a degree of definitiveness which would lead the casual reader to imagine that the whole affair was *exploitée*. We must also quarrel with Dr. Birch for striving so hard to justify a foregone conclusion that oxygen is a panacea. With one's experience of panaceal literature, what can one hope for from a work in which we are told that cancer, scrofula, neuralgia, asthma, bronchitis, phthisis, cardiac and hepatic disease, epilepsy, apoplexy, diabetes, paralysis, indigestion, &c., may be all or have been all successfully treated by the administration of oxygen? What other conclusion can we arrive at, than that the author's zeal exceeds his reason? There are many points of the highest interest dealt with in Dr. Birch's book, and the impartial reader will find many facts worthy of being considered and discussed most seriously, but we cannot think that the author has been well advised in urging definitive views as to the therapeutic application of oxygen. Nevertheless, those who would learn the virtues of oxygenated bread and water, ozonified oil, nitrous-oxide water, and peroxide of hydrogen, will find all they can wish for in this work.

A Manual of the Pathology and Treatment of Ulcers and Cutaneous Diseases of the Lower Limbs. By J. KENT SPENDER, M.B. London: Churchill, 1868.

MR. SPENDER gives us in this work a clear and broad view of the principles on which the treatment of ulcer should be based. He deals chiefly with the varicose, syphilitic, scrofulous, and traumatic ulcers; and while he leaves hardly anything unsaid as to local applications, he argues philosophically in support of the constitutional method of treatment. On the question of the advisability of healing an ulcer of the leg, he reasons with great force against the all-but-explored notion, that to cure an ulcer of long standing is to check a useful outlet for poisonous matter. There is one feature in Mr. Spender's book which calls for

special notice: it is the thoroughly straightforward manner in which he quotes the opinions of other writers, whether adverse to his views or not, and the care he has taken to refer to very recent publications on the subject of ulcer. The chapter devoted to cutaneous eruptions is not equal in importance to the rest of the work, but it is, nevertheless, a well-digested epitome, which will be found convenient by the practitioner. Mr. Spender extols the virtues of tar in the squamous order of skin diseases. He employs it in the form of ointment, not "the dark fiery stuff called by this name in the British Pharmacopœia, but that compound diluted with a large percentage of chalk ointment and zinc ointment, to give it consistence and astringency. These substances ought to be melted together and stirred while cooling; in this way a homogeneous ointment of great value is prepared. Spread thickly and evenly on soft lint it forms a very soothing application; it stops the extension of the skin disease, and a new healthy epidermis forms under the incrustation made by the chalky constituent of the ointment." The author has left untouched the question of malignant disease, as he considers that ulceration is, in a certain sense, merely an accidental phase in its history.

Hoarseness, Loss of Voice, and Stridulous Breathing, &c. By MORELL MACKENZIE, M.D. London: Churchill, 1868.

THIS is a second edition of Dr. Mackenzie's brochure, and it is interesting from the number of cases it reports as successfully treated by electricity. Out of nearly 200 cases of loss of voice "that I have treated in this way," says Dr. Mackenzie, "I have only met with four cases in which the treatment was not successful." The laryngeal electrode and necklet which the author has devised for the application of electricity are ingenious, and render the employment of this agent a matter of very little difficulty of manipulation. Would Dr. Mackenzie, however, give us some further information concerning the respective effects of galvanisation and faradisation? He states that it is a matter of indifference whether the battery or the faradic machine be employed. Now this statement is so thoroughly at variance with the general physiological results obtained by using these forms of electric force, that it at least demands some explanation. It would be well, too, if in future editions Dr. Mackenzie would adopt a more scientific and accurate terminology; he speaks so often of passing a sharp electric shock, that we are sometimes puzzled to know whether he does not refer to the employment of frictional (Franklinic) electricity. The cases recorded are instructive, and are thoroughly illustrative of the value of electricity in many forms of aphonia.

On the Preservation of Health. By THOS. INMAN, M.D. London : Lewis, 1868.

DR. INMAN is one of those members of our profession who see in the great mass of practitioners a number of charlatans and quacks. He reduces the laws of health to a refreshingly simple code, and is unsparing of the unhappy doctors whose blunders he has detected and exposed in the course of his medical career. The most remarkable and doubtless the most popular chapter in his work contains "plain and easy directions" for a husband; and in this Dr. Inman, with a keen relish for his subject, dilates humorously on the exercise of those functions associated with the thalamus. Doubtless some of his advice is sound, but from the coarse and indelicate manner in which the matter is treated, Dr. Inman's book is in the highest degree disgusting and repulsive to readers with any sense of delicacy or refinement.

Billing's First Principles of Medicine. Sixth Edition. 8vo. 703 pp. London : Bell and Daldy, 1868.

It is difficult to know what to say about this book. The author is a distinguished and veteran physician, and has done work which was useful in its time. His book is written in a very clear and pleasing style, and the fact that it has enjoyed so large a popularity that it now appears in a sixth edition must, we suppose, be taken to prove absolutely that some persons still derive help from it. But who these persons may be it is beyond our power to guess; for it might almost be imagined that the book was Dr. Billing's first edition, published no one knows how many years ago, so much does it ignore the lessons of recent medical science. It is impossible for us to afford the space which would be necessary to illustrate this fully; but we may point to one or two matters which strike us on opening the book here and there at random. For instance, as regards asthma, Dr. Billing denies that there is any essentially neurotic disease of this kind; but then it is quite obvious that he has never read the observations of Duchenne or of Bamberger, since his only idea of a neurotic asthma is connected with vague statements about "spasm of the bronchi."

Naturally, the therapeutics of such a writer are in what seems, to our judgment, a hopelessly backward position. Dr. Billing stoutly maintains the rigid separation of remedies into tonics, stimulants, sedatives, and tonics: he will not see that large doses of alcoholic "stimulants" are really true narcotics; and he insists that diseases attended with any pyrexia "must" be aggravated by alcohol, upon the perfectly hypothetical assump-

tion that "whatever produces a pyrexial state in the sound brain will increase it in the unsound," of which he neither gives nor of course can give any proof. He appears to be in ignorance of the researches of Ringer, which have proved that alcohol *reduces* temperature, and, indeed, he scarcely mentions the subject of thermometry in disease at all. We have said enough to show that it will be vain for the student to look for a sufficient account of modern therapeutics in this work. It is beautifully and very ably written, but it really has very little to do with the medicine of to-day.

Diseases of Children. By THOMAS HILLIER, M.D. London, F.R.C.P., Physician to the Hospital for Sick Children, and to University College Hospital, London. London: Walton, 1868. 390 pp.

THIS book may be called the antipodes of Dr. Billing's. It is a thoroughly sound piece of observation and practical application of experience. It is so thoroughly "clinical" that it is impossible to review it. But from the therapeutical point of view, which chiefly interests us, we may recommend it with great confidence; and it is certainly a very much needed work in this respect, for the text-books which have hitherto been standards on the subject have been extraordinarily conservative in their tendencies, and have tended to perpetuate not a little of the old routine drugging of children.

Commentaires thérapeutiques du Codex Medicamentarius, ou Histoire de l'Action physiologique et des Effets thérapeutiques des Médicaments inscrits dans la Pharmacopée française. Par ADOLPHE GUBLER. Paris, 1868.

(*Therapeutic Commentaries on the Codex Medicamentarius, or the History of the Physiological Action and Therapeutic Effects of the Medicines enumerated in the French Pharmacopœia.* By ADOLPHE GUBLER. Paris, 1868.)

THIS work, as its title expresses, is based on the *Codex Medicamentarius* or *Pharmacopée française*, drawn up by a commission presided over by the celebrated chemist Dumas, and published by order of the French Government in 1866. M. Gubler arranges the substances used in medicine very much in the same way as they are arranged in the official work. He, therefore, passes successively in review "the substances used in their natural state, or which figure in the formulæ of the Codex. They are divided into two series:—viz., 1. Substances drawn directly from plants or animals; 2. Substances drawn from

minerals and chemical products" (p. v.). In the first division the Codex is closely followed throughout; but in the second the author allows himself more latitude, since, as he truly states, "it would have been puerile to assign an article to each powder, pulp, tisan, potion, or pommade, having already necessarily mentioned the substances which form its basis."

The *Codex* contains, in the list of the *Materia Medica*, not less than 727 products, natural and artificial. We may say with M. Gubler, without fear of exaggeration, "that the official book continues to display a truly superfluous luxury of therapeutic means, for, as in old times, we see the innocent burdock and the not less illusory comfrey figuring by the side of the but slightly attractive crustacean, known by the name of wood-louse" (p. vii.). But however insignificant the officinal substances, M. Gubler has not omitted mention of any one of them in his Commentaries. Articles, duly proportioned to their importance, have been assigned to each of them; but he has reserved his space and strength for the more important medicines, such as the alkaloids of cinchona, opium, and belladonna, the ergot of rye, cod-liver oil, tartic emetic, alcohol, chloroform, digitaline, &c., all of which, he tells us, "are treated with a fulness we shall in vain search for in most classic works" (p. vii.).

M. Gubler tells us that "the doctrine of the specific virtues of remedies, the product of ontology, will perish with it; and when the physiological action of medicines comes to be perfectly known, therapeutics will no longer be but a corollary of physiology" (p. ix.). Starting with this conviction, in inquiring into the physiological effects of a remedy, M. Gubler devotes his attention, in the first place, to its topical effects, next to its sympathetic or reflex effects, and finally to its general action. The latter he considers to be due to the intermediation of the circulation; and in order to show that this is in great part composed of a series of local actions on the emunctories and different parenchymata, he proposes to call it "the spontaneously *diffused* action." He would also farther distinguish the direct effects proper to the active principle of a substance, from the indirect effects resulting from the action of the organism; in other words, the *positive* from the *negative* effects of a remedy. To effect all this he has called to his aid, he says, physics, chemistry, and experimental physiology. Taking a wide grasp of the subject, it has been his endeavour to deduce a theory of pharmaco-dynamics which shall meet the requirements of the time, inasmuch as it is a product of the most advanced views in the whole circle of the sciences. Having settled things so far, he next devotes attention to those substances which act like or resemble, in some points of view, the remedy under discussion, and these he would call *synergique*

or *auxiliary* remedies. Then come the *antagonists*, which play the part of correctives, or, properly named, the dynamical and chemical antidotes.

This much established, M. Gubler proceeds to lay down the therapeutic uses of a remedy. He begins by those of a rational character, and which are clearly explained by physiology, deduced from clinical observation, or experimentation on living animals. He does not divide these uses in conformity with nosological notions, but rather according to the chief effects of a remedy on the great systems and functions of the animal economy. The empirical use of a remedy, justified alone by the coarse results of a fortunate practice, are referred to a second and inferior place. Where necessary, the contra-indications are also pointed out; and, finally, the article on a remedy winds up with an account of the different modes in which it is employed, and of the doses in which it may be given.

We have not space to quote one of the more elaborate articles at length, but if the reader will open the book at the article "*Digitalis*," he will at once perceive the plan of M. Gubler's book, and the great value of the information which it contains. This article also illustrates a defect, which is much to be regretted. One would have wished to find the whole subject of *Digitalis* and its derivatives discussed in one and the same article. But the article on "*Digitalis*," elaborate as it is, does not complete the subject. In the second part of the work the subject is continued and thoroughly exhausted under the article "*Digitaline*." It is a great fault in the plan of such a work, necessitated by following the arrangement of the *Codex*, to break up the account of one and the same remedy under different heads. It leads to needless reiteration, and makes reference to the various articles under which a drug and its preparations are described a troublesome and, unless we happen to be well acquainted with them, very unsatisfactory proceeding. The British Pharmacopœia has set an example worthy of all praise by its adoption of a simple alphabetical arrangement throughout. Even with the aid of the full and accurate indices to the French *Codex*, there is not a little difficulty in hunting out the preparations of a drug,—a difficulty which the single and very inaccurate index to M. Gubler's Commentaries enhances tenfold. But with all its shortcomings, and they are not a few, the work is a valuable contribution in aid of the science of therapeutics, and we cordially recommend it as in every way worthy of the high position of medicine in France, and of the studious attention of the profession in this country.

Clinic of the Month.

Electrolysis in the Treatment of Hydatid Tumours.—

Some very instructive cases of this kind have lately been published. We may refer especially to one which was under the care of Dr. Hilton Fagge, at Guy's Hospital. The hydatid tumour was in the liver. The operation was thus performed:—Mr. Durham introduced two gilt needles into the swelling, one piercing the space between the eighth and ninth costal cartilages, and the other about two inches behind it, between the ninth and tenth, both being inserted to a depth of three inches. The needles were then connected with the negative pole of a voltaic battery of ten cells; the positive pole, with the ordinary conductor, being placed between the needles. The current was allowed to pass for twenty-five minutes, and during its passage there was noticed a crackling feeling under the finger, as of emphysema, which was thought to be due to the development of hydrogen. One of the sequelæ was peculiar; there was a large effusion of fluid up to the fourth or fifth dorsal vertebra. The presence of this fluid was explained by Dr. Fagge on the supposition that the newly-formed gas had by its pressure forced the hydatid fluid into the pleural cavity through a hole in the diaphragm made by one of the needles. The operation was perfectly successful. Examination three weeks subsequently discovered no abdominal tumour whatever. (See *Lancet*, July 18.)

Use of Electricity in Infantile Paralysis.—The value of this therapeutic agent in the treatment of the paralyzes of children is well illustrated in a lecture recently delivered by Dr. J. Russell Reynolds. Dr. Reynolds thinks that the electrical treatment has been on the whole the most efficacious. The most useful form is that of the interrupted battery current, which often elicits a curious fact. The physician will find, for example, a group of palsied, wasting muscles, inactive to faradisation but responding readily to galvanism. On applying galvanism on several occasions, he will find that some voluntary power is recovered, *pari passu*, with a diminished response of the limb to the galvanism. Further, he will observe that the muscles which first were inactive to faradisation, and responded readily to galvanism, are now readily contracted by the faradic current, and are relatively

inactive to galvanism. When this phenomenon is noticed, it will be well to change the form of electricity, and to substitute the faradic for the galvanic current. Galvanism must be patiently employed, often for many months. The practitioner should not despair so long as the least indication of increased voluntary power or nutrition of the limb presents itself. Should there, however, be no appearance of electric irritability after six or eight applications of both faradic and galvanic electricity, no benefit can be obtained by its further employment. The electricity may have its action assisted by friction and passive movement; but Dr. Reynolds has seen no definite result *quoad* the paralysis, from the employment of drugs. Of course, if the child be out of health, it will be advisable to bring it into a more favourable condition: in one case by alteratives, in another by iron, in a third by cod-liver oil. But the main object must be to treat the muscles, and to treat them without delay. (See *Lancet*, July 11.)

Hysterical Vomiting.—In a clinical lecture delivered at Charing Cross Hospital, Dr. Hyde Salter discusses the subject of the treatment of hysterical vomiting, and he concludes that almost all forms of drugs are useless in this affection. He thinks that there is but one remedy in these cases, and that is “the induction of maternity.” “When the subject of such symptoms marry, all vomiting ceases, or rather the particular kind of vomiting they suffer from is exchanged for another and more temporary and tractable kind of sickness.” Dr. Salter evidently assumes that maternity is the invariable consequence of marriage! (*Ibid.*)

Carbolic Acid in Acute Synovitis.—Dr. Hamilton publishes a case of acute synovitis in which, suppuration having taken place, he adopted the following measures:—Having previously dipped the knife in a strong solution of carbolic acid, he evacuated between six and eight ounces of pus by incisions, about an inch and a half long, on each side of the joint. He allowed the matter to escape, under what Mr. Lister has termed the carbolic veil. A paste of carbolic acid and linseed oil (one in three) and whiting was applied to the wounds on lead-paper. Slight pressure was placed on the sac of the abscess by two pads of lint on each side of the joint, and a bandage. The application of the paste was continued for two or three days, and the result was perfectly satisfactory. (*Ibid.*)

Vaginal Atresia and Absence of Menstruation cured by use of Tangle-tents.—Dr. W. Murray gives a case in which he shows the advantage of the tangle-tent in these affections. As, however, the cervix uteri was freely incised, this operation

doubtless deserves some share of the credit. (See *British Medical Journal*, July 4.)

Restoration of Upper and Lower Lip after complete removal.—Mr. Furneaux Jordan contributes a note accompanied by explanatory diagrams on this point. He shows that when one lip has been completely removed (either upper or lower) a very perfect lip may be made from the remaining lip. "The lower can be made into lower and upper lips; the upper can be made into upper and lower. The cut margins of cheek can be brought together with certainty of union. The cut parts can be brought together with *thick* silver wire. Wire as thick as an ordinary brass pin causes no irritation; it does not cut, and very powerful traction can be made with it. The simple suture should be used, and should include a great amount of tissue. The cheek should be separated freely from the jaw so that the deep parts may come easily together as well as the skin." "The mouth which results from the operation," says Mr. Jordan, "shortly becomes an excellent one, perfectly useful, and not inartistic." (*Ibid.*)

Hæmoptysis arrested by Ergot of Rye.—Dr. Horace Dobell advises the employment of ergot in cases where the practitioner has failed to arrest hæmorrhage by the usual remedies. Without quoting the somewhat elaborate prescription which Dr. Dobell recommends, we may state that he administers the liquid extract in doses of twenty minims every three hours, and in combination with digitalis, gallic acid, and many other preparations. (*Ibid.* June 27.)

The best Shape for the Uterine Sound.—In the course of an article on uterine displacements, Dr. Alfred Meadows, having stated his opinion as to the normal direction of the uterine cavity, gives the following description of a species of sound which he considers most in accordance with the natural position of the parts: its uterine portion is straight, not curved, and is set at an angle with the handle or stem, which facilitates its introduction in the direction of the pelvic brim. For the sake of portability the instrument is jointed in its middle, and at the handle end there is set a prism, which is intended for use as a metroscope through the speculum. Dr. Meadows considers that the practitioner will find this a most efficient and convenient instrument. (See *Lancet*, July 18.)

Treatment of Aneurism with Iodide of Potassium.—Dr. G. Balfour, of the Royal Infirmary, Edinburgh, relates three instructive cases in which the prolonged use of the iodide produced excellent effects. Two of these were cases of thoracic, and one of abdominal, aortic aneurism. In two of the cases

there could be no doubt as to the diagnosis, but in the third there was a slight amount of doubt; in all the treatment with iodide was remarkably effective: it was conjoined with complete rest, and very strict observance of abstemious diet, both as to food and drink. Dr. Balfour sums up the results which have been obtained by this treatment in 15 recorded cases (including his own three), and remarks that in all, save one—a perfectly hopeless case—there has been a marked relief to suffering. In 12 there has been undoubted diminution in the size of the sac, while in a few, the number of which a longer continuance of the treatment has probably now increased, there has been so complete a subsidence of the humour, and relief of all the symptoms, as to amount to an apparently perfect cure. Dr. Balfour justly remarks, that these results are extremely encouraging. He observes, however, that great pains must be taken to *saturate* the system with iodide without, on the other hand, producing the distressing effect of iodism, and considerable caution will be necessary, as individuals vary much in susceptibility. In his own cases the doses varied from 5 to 30 grains three times daily. (See *Edinburgh Medical Journal*, July.)

Treatment of Uterine Cancer by Carbolic Acid and Glycerine of Tannin.—Dr. W. Playfair, Assistant Obstetric Physician at King's College Hospital, sends us a note, in which he reports the encouraging success which he has obtained from the application of this treatment. He mixes glycerine of tannin and carbolic acid in equal proportions, and applies a pledget of cotton wool, soaked in the mixture, to the cervix uteri. In the first case in which he applied it there had been irregularly recurring hæmorrhage; the application of perchloride of iron checked this, but four months later the bleeding recurred, and the disease was now found to have made great progress, the cervix being extensively infiltrated with malignant deposit, and general cachexia having appeared. The new remedy was now applied on the cotton wool, which was drawn out of the vagina with a string, and resoaked, twice a week; the vagina was also washed out twice daily with a tablespoonful of the mixture in a pint of water. Fætor entirely disappeared, and the hæmorrhage has never recurred; the patient has gained flesh, and her complexion has improved. Similar success in removing fætor and restraining hæmorrhage has attended Dr. Playfair's application of the remedy in several subsequent cases of malignant uterine disease; and though this be only a palliative measure, yet it is no trifling matter to produce such a considerable improvement in the health and comforts of such patients.

Treatment of Post-nasal Catarrh.—Dr. Horace Dobell,

Senior Physician to the Royal Hospital for Diseases of the Chest, sends us a note on this subject:—"In 1854, I read to the Observation Society of St. Bartholomew's Hospital a paper on a common complaint, to which I gave the name 'Post-nasal catarrh.' So far as I am aware, it has not previously been described as a distinct affection, although, doubtless, it must have long been familiar to medical men. Subsequent experience having fully confirmed the accuracy of the account of the disease which I drew up in 1854, I published an abstract of my original paper in an appendix to my work 'On Winter Cough,' in 1866, to which I may refer those who are interested in the subject. (*Lancet*, June 9, 1866.)

"In that abstract I purposely omitted the treatment of the disease, because I had not then quite decided which was the best of the many plans I had tried. I propose now, in as few words as possible, to supply the omission referred to. Although at first sight a very trifling complaint, post-nasal catarrh is unquestionably very troublesome to cure, and is very apt to return. The difficulty is mainly due (1) to the awkwardness of applying topical remedies to the parts principally affected, (2) to the almost invariable existence of a diathetic cause, and (3) to the length of time which the complaint has usually existed before the patient comes under treatment. As in all affections of the naso-pulmonary mucous membrane, the first point is to make out the nature of the existing morbid constitutional state, and to employ appropriate diathetic treatment for its removal. But, unfortunately, this alone will not be efficient, for the local affection will seldom yield without some topical applications; and it is in settling the form of this local treatment that I have found the greatest trouble. After trying a great number of applications in the form of spray, injection, gargle, lotion, inhalation, snuff, and lozenge, I have come to the conclusion, that the best for the majority of cases is the combination of a MEDICATED SNUFF and a MEDICATED LOZENGE.

"The snuff consisting of camphor, tannic acid, white sugar, and high-dried Welsh snuff, of each ʒj.

"The lozenge consisting of camphor, gr. ij.; guaiacum, gr. j.; tannic acid, gr. $\frac{1}{2}$; hydrochlorate of morphia, gr. $\frac{1}{32}$; tincture of benzoin, ℥ij.; white sugar, gr. xix.; acacia gum, gr. ij.

"From three to four lozenges should be taken each day, one of which should be taken at bed-time, and one on waking in the morning. The snuff should be used once in the morning, once in the evening, and once or twice in the day, and it is best applied by means of a little elastic tube, one end of which is charged with snuff, and pushed into the nostril, the other end being put into the mouth, and the snuff blown up the nose with a sharp puff. I ought to add that the snuff must be discontinued should

a fresh attack of nasal catarrh happen to set in, but its use must be resumed on the subsidence of inflammatory symptoms. The lozenges should be continued throughout."

Treatment of Pneumonia in the Boston City Hospital.—Dr. Borland gives a careful tabular statement of the particulars of 90 cases of pneumonia which have occurred in this hospital since its opening in 1864. The average age of the patients was 31 years; the average duration of the disease was $39\frac{1}{2}$ days. Twelve died—a mortality of $7\frac{1}{2}$ per cent. The treatment was as follows:—Milk always by bedside for the patient to drink at will. Beef-tea and wine-whey given alternately, regulating the frequency by the severity of the case. In the most severe cases the patient gets from six to twelve ounces of sherry, or (in greatly debilitated cases) milk-punch or brandy. As soon as possible the alcohol is withdrawn, and replaced by soups, &c. As soon as the patient gets at all an appetite back he is given a liberal animal and vegetable diet. A "jacket" of hot poultice to the chest was often used. Calomel and antimony were only employed in six cases (all of which recovered), and bleeding was never practised. These results are good and creditable, as the tables show that there was no lack of severe cases.

Modification of Lister's Carbolic Acid Dressing.—We learn that Professor Lister has recently modified his plan of dressing wounds, by omitting the use of the plate of block-tin, and proceeding as follows:—The vessels having been secured by torsion, he washes out the wound with carbolic acid and oil, and then closes it with the continuous metal suture. He puts a pad of oiled lint at the tail of the wound to soak up discharge; over the wound he puts one piece of lint, soaked in oil and acid, which remains *in situ*; over this again a second similar piece, which is regularly changed. He uses no "putty;" but over all he puts a plaster made with a mixture of litharge and carbolic acid: this is not adhesive, but requires to be kept in place with ordinary strapping and bandage.

Convenient Vehicle for the Application of Nitrate of Silver.—At University College Hospital, they have adopted the plan of dissolving nitrate of silver in nitrous ether; it can then be spread with a camel's-hair brush over a surface, and the ether immediately evaporates.

Treatment of Cholera and Diarrhœa.—Sir Thomas Watson again puts forward a statement in support of Dr. Johnson's views on the pathology and treatment of cholera and diarrhœa. He says that he has become convinced that the astringent plan

of restraining these affections must be given up as useless and hurtful, and that without endeavouring to excite secretion we must cause the elimination of noxious matters by administering emetics or draughts of tepid water, or castor oil ; and after free evacuation has been secured by these means, then a little brandy and a few drops of laudanum may be given to quiet irritation and remove the sense of sinking. In some cases of severe and protracted diarrhœa it may be necessary to alternate the oil and the laudanum for some hours. (See *British Medical Journal*, July 18.)

Extracts from British and Foreign Journals.

Cure of Epilepsy by Compression of Nerve.—The *Revue Médicale*, June 30th, relates a case of epilepsy, in which compression of the nerve, by preventing the premonitory aura, arrested the fits. The patient, a carrier, had been for some time attacked with epileptic fits preceded by a peculiar aura, accompanied by spasmodic movements of the right index-finger. The ordinary medical treatment—valerian, oxide of zinc, belladonna, and bromide of potassium—failed to give any relief; the fits were neither arrested nor altered in character. Under these circumstances, Dr. Rozier thought to prevent the propagation of the aura to the central nervous system by compressing the nerves of the arm. To effect this he got a sort of compressor-bracelet constructed, which he caused to be worn on the arm of the patient. The bracelet is so constructed that the moment the aura presents itself the patient can, by a special contrivance, cause a spring to press steadily on the nerves. The man has now worn the bracelet for eleven months; he has been able to arrest all the attacks preceded by an aura; he has never once lost sensibility; he is able to resume his duties; and the fits seem to come on at longer intervals.

Abscess of Liver treated by Puncture and Injections of Iodine.—In the *Recueil de Mémoires de Médecine et de Chirurgie*, No. 103, M. Sistach publishes an interesting case of abscess of liver treated by puncture and subsequent injection. After pointing out the difficulty of diagnosing abscess from hydatid tumour, he goes on to say that, on consulting recent authorities, he has been surprised to find that this mode of treatment has been recommended for special cases. After quoting the remarks of various foreign writers, he adds: "For ourselves, in spite of the silence of authorities on the point, we believe we are fully justified in laying down the following conclusion:—When the hepatic tumour is high and has a reddened cutaneous surface, with superficial fluctuation, so that we are led to suspect an adhesion to the abdominal walls, puncture with the hydrocele trochar, and subsequent injections of iodine, may be adopted with great advantage. We prefer," he says, "the trochar to the bistoury, because it enables pus to be drawn off more

rapidly and safely, and also because it allows of the injections being carried into the depth of the pus-forming tissues which have been previously washed with warm water." The iodine, he thinks, stimulates the walls of the abscess, and prevents the formation of pus.

Local Action of Phosphorus.—The *Archives Générales de Médecine*, for July, contains a notice of M. Ranvier's inquiries on this point. Phosphorus has generally been regarded as an irritant substance, but the researches of M. Ranvier lead to the modification of this view. This observer placed fragments of phosphorus in the depths of the tissues of various animals, and found that they did not excite as much disturbance as ordinary foreign bodies. These experiments were conducted firstly on frogs. When pieces of phosphorus were placed in the tissues of these animals, death ensued in about three weeks, and the characteristic effects of phosphorus—fatty degeneration of the liver and kidneys—were then observed. Yet the phosphorus had undergone little change of volume, no loss of transparency, and there were no local signs of suppuration, exudation, or even thickening of the connective tissue. In dogs and guinea-pigs, poisoning was not produced by the introduction of the phosphorus beneath the skin. The animals, when killed some ten or fifteen days after the experiment, were found healthy, but the phosphorus was enclosed in a sort of cyst of connective tissue. Hence M. Ranvier concludes that not only is phosphorus not a stimulant, but that, indeed, it is a contra-stimulant to the elements of the tissues.

Tracheotomy in the last Stage of Croup.—At the meeting of the *Société Médicale des Hôpitaux de Paris*, reported in the *Archives Générales* for July, M. Archambault advised the performance of tracheotomy as a *dernier ressort*, which is sometimes attended with good results. Of 65 cases of this operation in children he recorded 21 cures, in all of which the symptoms of croup had been continued so long that life was quite despaired of. This, he says, is as large a proportion of successful cases as when the operation was performed at an earlier period. He does not recommend delay in all cases, but he says, "It is never too late to practise tracheotomy while there is life." Age, he thinks, has little influence on the result, and the statement that at a greater age than seven years the operation is unsuccessful, is, he declares, denied by the facts. He states that the chances of success are less as the children are young, and that it increases with the age, but that in no case can age be regarded as a contra-indication. Temperament, too, would appear, according to the author, to have this much influence: robust children of the sanguine temperament are less favourable subjects than delicate children with

lymphatic temperaments. Finally, he thinks that tracheotomy is likely to be advantageous in those cases of croup in which the children have formerly shown a disposition to bronchial secretions.

The Hygienic Treatment of Scrofula.—Those who are anxious to see what can be done to cure scrofula by hygienic measures, should read a very elaborate and interesting paper by M. Bergeron, in the *Annales d'Hygiène publique*, No. 58. The author treats the subject generally, and refers also to the special example afforded by the Convalescent Hospital at Berck, in which the treatment by sea-baths is largely adopted. Here are the figures which M. Bergeron gives in support of his opinion, that in scrofula great things may be achieved by hygiene :—Of 380 cases, 234, or 60 per cent. were cured ; 93, or 23 per cent. were much improved ; 18, or 4.6 per cent. died ; and in 35 there was no result. These returns, he says, prove beyond question the good effects of the sea-water treatment, for the medicinal treatment is almost *nil*, the drugs used in the year being a few doses of ipecacuanha and bismuth. Life in the open air, baths twice a day from spring to autumn, a little sea-water taken as a drink, a substantial and varied diet, and gymnastic exercises,—such, says M. Bergeron, are the influences which bring about such wonderful results at Berck.

Use of the Laryngeal Speculum in the Restoration of the Drowned.—M. Labordette has published a very long paper on this subject. He goes into an analysis of the various opinions from time to time emitted as to the physiology of drowning, and he arrives at the conclusion that water, sometimes in considerable quantity, passes into the lung, and that the employment of the laryngeal speculum in these cases is of the greatest benefit. The author gives two good woodcuts, and explains very thoroughly how the instrument is to be employed in rescuing the drowned. (*Annales d'Hygiène*, No. 58.)

Treatment of Cancer by Caustics.—In the *Belgian Journal de Médecine*, M. Bouchard relates several cases of cancer, as he says, cured by the application of caustic. The caustic applied is one capable of producing in four or five hours an eschar of about a centimetre in thickness. This is a short sketch of his application of this process :—“Suppose a cancer extending to a depth of six, seven, or eight millimetres ; to this I apply the caustic in such a way as to extend beyond the diseased part. In four or five hours it gives rise to an eschar of a depth of a centimetre. I now remove the caustic and place a linseed poultice ; this relieves the pain, and the eschar drops off in about ten or twelve hours. I now examine the parts, and if I find any morbid growths remaining, I continue the application

of the caustic. If not, I gradually day by day bring the lips of the wound together, and thus try to effect a linear cicatrix. The cases reported by the author bear out his opinions fully.

Use of Phosphoric Acid in Hæmoptysis.—M. Hoffman states that among the many preparations employed to check hæmorrhages, he knows of none so efficacious as phosphoric acid. He gives the following reasons for supposing that it is better than other astringents. The phosphoric acid is less corrosive than the other mineral acids. When diluted with water it occasions less disturbance of the stomach, and consequently interferes less with digestion than other acids. For this reason its administration may be continued for a very long time. When introduced into the stomach, it decomposes only the lactates and carbonates. It partly unites with the protein compounds, and thus passes into the blood in a condition to unite with the soda. He regards it as a useful stimulant to the nervous system, but considers that further experiments are wanted to complete our knowledge of its therapeutics. Besides its value in hæmoptysis, it is very useful in checking genito-urinary catarrh and similar affections. M. Hoffman administers it in mucilage in doses of from ten to thirty drops, three times a day. (See the *Journal de Chimie Médicale*, June.)

Intestinal Obstructions treated by Electricity.—In recording a case in which electricity was not employed, and in which death resulted, M. Krishaber urges on practitioners the advisability of having recourse to electricity in cases of intestinal obstruction. In such cases, he says, the intestine, from having made several ineffective efforts to expel the obstruction, becomes as it were exhausted and ceases entirely to contract. Then the continuous passage downwards of the contents of the intestine above the obstruction, renders this latter greater than before. Hence, says M. Krishaber, there is all the more probability of electricity being attended—as in Duchenne's cases—with most beneficial results. (*Bulletins de la Société Médicale d'Emulation*, Tome ii, No. 1.)

Use of Phosphorus in Mercurial Trembling.—Some cases of this kind, which were treated with pills of phosphide of zinc by M. Guéneau de Mussy, have been reported in the *Gazette Médicale de Lyon*, July 12, and deserve attention. In one of the cases the patient had been ill for four years, and the pills (one millogramme), when first administered, produced some diarrhœa; the pills were then suspended for a few days, and were afterwards re-administered in combination with thebain. On the second day the patient had an erection. Three days afterwards he trembled very little, he could use his hands in dressing, &c., and he could write clearly and distinctly. The

first effects of the pills, so far as they could be observed, were flatulence and gaseous eructations. After a few days this symptom disappeared, the appetite increased, the *morale* immensely improved, and the patient began to get fat, and to lose his cachectic expression. M. Dujardin-Beaumetz, on the supposition that phosphorus accumulates in the system, has advised that there should be intervals of repose in its administration. M. Vigier is not of this opinion. M. de Mussy thinks that while we are in doubt it is best to be cautious. The cure has been so rapid in these cases, that M. de Mussy says it may be urged perhaps that it was not due to the phosphorus. In reply to this objection he argues that if in the course of a few hours phosphorus produces changes which affect the inmost elements of the tissues, and causes fatty degeneration of the muscles, why should we suppose it incapable of bringing about a therapeutic effect with equal rapidity?

The Local Application of Bromide of Potassium has been much extolled by M. Ferrand, who alleges that it is as powerful a sedative locally as when given internally. He has used it in the spasm of hæmorrhoids, anal fissures, canceroid, &c. Compresses saturated with a solution of four parts of bromide in twenty of glycerine, give immediate relief to the pain and other nervous disturbances.

Papaverine as a Calmative and Hypnotic in Mental Diseases.—Drs. Max Leidesdorf and Hermann Breslauer have made a number of observations on this subject. As there has been a good deal of confusion owing to different substances being called by the common name of Papaverine, the authors specify that it has the composition $C_{20}H_{21}NO^4$, is insoluble in water, and very slightly soluble in alcohol and æther at ordinary temperatures (but more readily in the boiling-heat); soluble in 77 parts of amylic alcohol and in 37 of benzole. It is coloured deep blue by concentrated sulphuric acid; boiled with dilute sulphuric acid and manganese, brown masses separate, which the microscope shows to be crystalline. These are soluble in water, from which they can be again precipitated by sulphuric acid. The authors relate seventeen cases of its therapeutical employment, and they conclude that it is hypnotic, that it calms muscular excitement (*e.g.* delirium tremens), always diminishes the frequency of the pulse, and that this calmative action is not preceded by any stage of excitement. It never produces, either when given by stomach or by skin, vomiting, giddiness, or unconsciousness; nor does it constipate, but, if anything, has a contrary effect. Its action is slow, only beginning after four to seven hours, and does not cease for from twenty-four to forty-eight hours. It produces sleep, in some cases where even the largest doses of opium and of morphia have

failed. Habit does not easily destroy its activity, and it is, therefore, not often needful to increase the dose. Papaverine only acts as a palliative to the excitement of insanity and insomnia; it exercises no direct influence on the ultimate sources of the disease. (*Vierteljahrsh. für Psychiatrie*, i. 3, 4.)

Artificial Exanthema as a Cure for Insanity.—Dr. Schauenburg refers to one recorded case in which an insane man, who had passed into a chronic and harmless condition, was restored to full cerebral activity by the outbreak of a copious pustular eruption on his skin, induced by very severe and long-continued work with a threshing-flail, which made him sweat profusely. Schauenburg has now to record a case of melancholia, treated by himself, in which a pustular eruption was provoked by making a number of needle-punctures in the skin of the trunk, arms, and neck, and then rubbing in an irritant substance; after some days this excitement was renewed and increased by artificial frictions. The treatment produced, at the moment, some restlessness and fever, and a great amount of sediment in the urine. The patient was sent to his home to complete the further treatment, which simply consisted in a little dry rubbing, causing a pleasant sensation in the skin. He completely recovered in about four weeks. The author does not doubt that the counter-irritation really affected the cure, because he has seen the same result follow this proceeding in analogous cases. *Ibid.*

Arrest of Alopecia Pityrodes.—Dr. Pincus writes a valuable paper on this subject. He confesses that when once the disease has reached the second stage, complete restoration of the hair is impossible, but he declares that in several cases he has entirely arrested the morbid process for years. Two remedies have proved really useful—tannin and oil of savin. The tannin he applies in an ointment: eighty grains to an ounce; the head must be cleansed twice or thrice a week, with a thick, soft pencil-brush, dipped in warm soap and water. The savin oil is to be dissolved in alcohol (five to thirty drops to the ounce). It produces a remarkable diminution in the falling out of the hair, and a delay in the rapidity of its growth; and its effects are more permanent than those of the tannin. It has the inconvenience, however, of making the hair somewhat harsh and brittle, and somewhat alters the colour, especially of dark hair, changing it, and also the outer epidermis of the scalp, to a blotchy grey or brown. It has also the still graver fault that (either from its powerful odour, or else from actual absorption) it sometimes produces nausea, headache, vertigo, and sleeplessness. It is a great pity there are these serious disadvantages to set against the excellent curative action of savin.

In the early stages of alopecia Dr. Pincus has been led by his experience to reject the caustic and other strongly stimulant applications which are commonly recommended. The best application which he has tried is bicarbonate of soda; different individuals will require a different strength of the application, but in any case it should be made just so weak that after rubbing it in for several minutes, neither redness nor burning is noticed. The objection to soda is its effect on the colour of the hair, which it is apt to turn a blotchy red-brown, especially dark hair, and the only way to conceal this is by oiling the hair. (*Virchow's Archiv*, iii. 3.)

Purulent Catarrh of the Ear treated by Caustics.—Dr. Schwarze thinks this kind of treatment is not so generally known, nor so highly appreciated, as it ought to be. Schwarze uses a solution of nitrate of silver, 15 to 40 grains to the ounce. He syringes out the ear, and carefully dries it with charpie carried on forceps, before putting the solution into the outer ear. If there be a large perforation of the tympanum, the fluid will easily reach the tympanic cavity. If the perforation be but small, it may be necessary to exercise pressure on the surface of the liquid in the outer ear, when it will readily pass in; about 20 drops are usually enough, and it should be warmed. Schwarze says that hyperæmic and swelled conditions of the mucous membrane are always benefited by the application, and stinking discharges are constantly rendered less foetid. In cases of *granulation* of the mucous membrane of the tympanum, the application of caustic solution is often no use, and solid nitrate of silver must be applied. (*Archiv der Ohrenheilkunde*, iv. B. 1 Hft.)

Therapeutic Value of Chinovic Acid.—Dr. G. Kerner, of Frankfort, has examined the action of this resinous acid, which is one of the constituents of all cinchona barks. He finds that it is an important *factor* in the general tonic effect of bark. It does not cause the symptoms of “cerebral congestion” when given in large doses, like quinine. Chinovate of lime is a bitter and tonic which exceeds in value the majority of all yet discovered bitters. The freshly-precipitated acid has a striking effect when administered internally; it is rapidly absorbed, and produces a permanent lessening of the peristaltic action of the bowels. In Samarang, chinovic acid has proved most useful against the dysentery which is so prevalent there, and the same thing has been noted in the Frankfort Military Hospital. In chronic, so-called “nervous” diarrhœa, excellent results have been obtained by Kerner, and also by De Neufville and Wallach. —(*Wiener Med. Wochensh.*, 43.)

New Treatment for Spermatorrhœa.—Dr. Bliss recom-

mends the employment of bougies cooled in iced water to about 38° Fahr.; they are to be introduced twice a day at first, and retained for five or ten minutes at a time. He has treated three cases successfully in this way, and believes that the good effect was due to a local tonic and sedative effect, reducing the irritability and hyperæsthesia on which the continuance of the disease commonly depends. (*Boston Medical and Surgical Journal*, Jan. 30, 1868.)

New Uterine Douche.—Dr. H. Beigel brings forward a new form of uterine douche, which consists in an application of the Bergsson's tube and hand-ball. The liquid to be injected is contained in a glass vessel holding two pints or more, which is closed by a metal top communicating with the tube from the hand-ball, from which the current of air is sent through the ordinary tube which emerges the other side. When the atmospheric pressure has been raised by a few compressions of the hand-ball, a stop-cock is opened, and the stream is projected continuously along the tube which carries it to the uterus, being easily regulated by the hand-ball. The apparatus is portable, easily cleaned, and works perfectly; it may be employed also for the rectum, the eyes, pharynx, nose, and for cleaning surgical wounds, &c. It may also be applied to the purposes of microscopic injection. (*Med. Times and Gazette*, July 11, 1868.)

Electrical Treatment of Tinnitus Aurium.—Dr. P. Schivardi relates a very interesting case of severe tinnitus aurium, which was cured by faradisation. The patient was an Italian singer, who was engaged at the opera at Teflis in Asia Minor, in 1864. While shooting one day, his fowling-piece burst in his hands, and though no wound was inflicted, he immediately began to suffer from loud and persistent noises in the ears, which completely prevented him from performing his professional work, as he could neither distinguish the notes of the orchestra, nor even hear his own voice with any accuracy. He came under Schivardi's treatment in May 1867. The induced current was used, the current of the *secondary helix* being selected, on account of Duchenne's statement as to its action on the organs of sense. One of the conductors was introduced into the external meatus auditorius, the metal (platinum) not being in contact with the tympanum, but passing into a column of tepid water contained in an ivory tube, which completed the communication. The current was used with great caution at first, and only for a few moments; subsequently the *séances* were extended to twenty minutes. Twenty operations completely removed the noises in the ears, and the patient was enabled to resume his career as an operatic singer, in which he immediately

afterwards filled an arduous position with brilliant success. (*Annali Universali di Medicina, Magg.* 1868.)

An Economical Application for Foul Wounds and Ulcers.—Dr. Stazi relates his success with the application of a powder composed of equal parts of sulphate of alumina and potash and of sugar. He finds, after an immense experience in the Ospedale St. Giacomo, that it never fails to detach a soft eschar in from twelve to twenty-four hours, leaving a beautifully healthy surface. It can also be applied to cancerous wounds with good effect. When applied to the os uteri it should be mixed with powdered gum, to make it adhere. Sometimes the irritant effect is so strong as to produce a zone of inflammation round the wound: in this case a poultice must be subsequently applied. (*Giornale di Roma.*)

A Suggestion for resolving Cataract.—Professor Polli, of Milan, commenting on the success obtained in the treatment of corneal spots with *crystallized sulphate of soda*, makes the important suggestion, that this substance, in solution, might be injected into the anterior chamber of the eye, with the hope of dissolving the nebulous matter of cataract. He thinks that a solution strong enough to have a good chance of effecting this purpose would be perfectly well tolerated. (*Ann. Univ. di Med. Magg.*)

The Carbolic Acid Treatment of Suppurating Wounds.—Similar accounts of the good results of this treatment to those which we reported from Dresden, reach us also from Vienna. Professor Dittel details cases, and reports most favourably. (*Allgem. Wiener Med. Zeitsch.* 19.)

Veratrum Viride in the Treatment of Pneumonia.—Dr. Kiemann re-investigates this subject at considerable length, giving the details of 40 cases of pneumonia which were treated exclusively with this drug. The tincture was employed, and Kiemann found it preferable to give it in small doses very frequently, *e.g.* one drachm of the tincture in an eight-ounce emulsion, of which one tablespoonful should be given every hour. The number of fatal cases were 5, or 12.5 per cent. Comparing this with the mortality met with by other practitioners, and with various treatment, Kiemann gives us the following table:—

Expectant Treatment.

				Mortality.	
Thomas	.	.	.	21.5	per cent. in 65 cases.
Bleuler	.	.	.	22.9	" 148 "
Dietl	.	.	.	7.4	" 189 "

Blood-letting Treatment.

Dietl	.	.	.	20.4	"
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Tartar Emetic.

Mortality.

Dietl 20.7 per cent.

Veratrum Treatment.

Vogt 7.8 per cent. in 51 cases. ;

Biermer 10 " 60 "

Kiemann 12.5 " 40 "

Various Treatments.

Magnus Huss 10.7 " 2,616 "

Register of the Rudolf Hospital, Vienna 26.5 " 114 "

Allgemeines Krankenhaus, Vienna 21.5 " 756 "

Kiemann remarks that his mortality seems higher than it ought to be; but he says that the fatal cases were hopeless ones from the first. The remedy appears to nauseate in about half the number of cases, but by confining it to the small doses already mentioned, there is never a troublesome amount either of this symptom or of diarrhoea. As a means of reducing the pulse-frequency, Kiemann thinks veratrum viride in every way superior to digitalis, and it is especially valuable as being free from any cumulative tendencies. He has employed it, with the same remarkable effect on the pulse, not only in pneumonia, but also in valvular disease of the heart, endocarditis, pleurisy, and bronchitis. He regards it as a powerful agent, by no means to be trusted to the hands of private persons. In none of his own cases which proved fatal, was there the least sign of that *inflammation of the stomach and intestines* which Magendie speaks of as an effect of the drug. The *collapse* spoken of by Biermer as a frequent symptom, was never observed by Kiemann. (*Prag. Vierteljahrsh.* iii. Band, 1868.)

The Effects of Tartar Emetic in small Doses.—Dr. Alfred Nobiling records a number of clinical and experimental researches on this question. He comes to the conclusion that the action of the potash constituent of the salt is something quite independent of the antimonial action, and that it is very depressing to the heart; while the action of the antimony seems to be confined to the alimentary canal. He thinks very unfavourably of the therapeutic value of tartar emetic. Used in emetic doses, it produces too much collapse; used in the so-called "nauseating" doses, Nobiling says that it is the most uncertain agent possible, scarcely any two persons having the same degree of susceptibility to it. He considers its use in typhus and pneumonia very dangerous, owing to the unexpected collapse it may, and often does, produce, and thinks that it is mere luck and coincidence when a pneumonic patient seems to improve under it. He says the same of its effects

in bronchitis and pleurisy; and he ridicules the idea, that in croup and diphtheria the vomiting produced by emetic doses of the salt has any serious effect in dislodging the tracheal false membrane. He thinks equally ill of the prolonged use of small doses of tartar emetic, which he believes produces chronic inflammation and ulceration of the stomach and intestines. Finally, he says that the action of tartar emetic is now proved to be compounded of two separate effects, those of antimony and potash; that each of these can be separately produced without using the salt which combines them. He strongly recommends that when we want the effects of antimony we should use a *tartrate of ammonia and antimony* instead of tartar emetic. This salt is soluble in water, like tartar emetic, and (like the corresponding *soda* compound) it does not produce the depressing effect of the tartrate of antimony and *potash*. (*Zeitschrift für Biologie*, iv. Band, 1 Hft.)

Notes and Queries.

PHYSIOLOGICAL ACTION OF PHOSPHORUS.—In the *Archives de Physiologie* for July, M. Lecorché publishes the first part of a valuable paper on the physiological, clinical, and therapeutical history of phosphorus. As the portion of the memoir already published relates only to the analysis of various theories as to the effects of phosphorus, we merely refer to it, so that those of our readers interested in this part of the subject may consult it for themselves. When the author has dealt with the therapeutics of phosphorus, we shall give an abstract of his conclusions.

A PHTHISIOLOGICAL SOCIETY.—Professor Fonssagrives writes to the *Revue Médicale*, June 30th, to propose the establishment of a society for the investigation of phthisis. He gives a number of questions which the inquiries of the Association should answer, and urges many reasons in support of the importance of the proposed society.

TAR-WATER.—Some useful hints as to the properties and preparation of this substance will be found in a paper by M. Jules Lefort, in the *Bulletin de l'Académie*, June 30th.

AN ANTI-ASTHMATIC PAPER.—In the *Journal d'Anvers*, M. Hager gives a formula for the preparation of an anti-asthmatic paper, which may be found useful by our readers. You take a quantity of unsized paper, and having thoroughly soaked it in hot water, and then squeezed it dry, you incorporate it in a mortar with the following powder:—Nitrate of potass, 60 grammes; myrrh, 10 grammes; belladonna, stramonium, and digitalis, of each 60 centigrammes. When burnt, this paper is said to possess wonderful antispasmodic qualities.

THE FEEDING OF INFANTS.—The Société Protectrice de l'Enfance de Lyon proposes to award at the end of the year a prize of 400 francs to the author of the best memoir on the following subject: "What is the best mode of feeding infants who cannot be nursed by their mothers?" The essays must be sent in before the 1st of December, 1868, to the Secrétaire-Général of the Society, 60, Avenue de Saxe. (See the *Gazette Médicale de Paris*, July 11th.)

VERATRUM VIRIDE IN PERICARDITIS.—Dr. J. Waring-Curran writes to us to state that he has found this drug of the highest value in the treatment of pericarditis. The extract made by inspissating the juice of the root is the preparation he has invariably employed, prescribing it in two-grain doses, with one grain of calomel in the form of pill, every two hours, and carefully watching its effects. Its power of reducing the frequency of the pulse, and of increasing the renal and hepatic secretions, lead him to regard the veratrum viride as almost a specific for pericarditis. In cases of acute rheumatism in which pericardial symptoms began to be manifest, he feels assured “that the mischief was baffled by the early and careful exhibition of ten-drop doses of the tincture of veratrum viride in the asthmatic mixture.”

NECESSITY FOR THERAPEUTICAL INVESTIGATION.—At the meeting of the General Medical Council, on July 3rd, Dr. Acland, in continuing his remarks on the necessity for giving grants to individuals for experimental inquiry in elucidation of various points in therapeutics, urged that it was by similar means that the British Association and the Royal Society added so much every year to our knowledge of scientific phenomena. He stated that “*The signs of the times pointed to our want of an accurate knowledge of the value of therapeutic substances; and there was a very earnest desire on the part of the profession for such knowledge.*”

THE ACTION OF DIGITALIS.—In continuing the papers on this subject in the *British Medical Journal*, Dr. Edward Mackey concludes by stating that the idea that digitalis acts through the sympathetic system by causing contraction of the capillaries is not the “whole truth.” A varying amount of direct action on the heart must be allowed. It seems as if this drug toned a feeble heart, and lessened the tone of a healthy one.

TINCT. FERRI PERCHLOR. IN DYSENTERY.—We have received a note on this subject from Mr. W. H. T. Power, B.A., assistant-surgeon 2nd battalion 13th Light Infantry. Mr. Power describes a form of dysentery to which his men were subject while in a small island near Mauritius, but which was quite distinct, both in symptoms and course, from the ordinary Mauritian dysentery. The latter is readily checked by the use of large doses of ipecacuanha, but the disease which Mr. Power describes did not yield to this treatment. Mr. Power was led to try the tincture of the perchloride of iron, and he found the most valuable results follow its administration. Of fifty cases but three died, and at least ten of the recoveries were as severe cases as those which had proved fatal. The three deaths he attributes to the administration of too small doses of the drug. From 200 to 600

minims per day were given, the average dose being 10 minims to the fluid ounce. Its effect was seen very shortly after administration in the arrest of the liquid stools. Mr. Power considers the action of this preparation as marvellous as that of quinia in malarial diseases.

ACTION OF CAFFEINE.—A correspondent asks how caffeine, which, like coffee itself, has been used for the purpose of *rousing* the nervous system (*e.g.* in opium-poisoning), can be effectively used in the manner described in our last number, as a calmer of pain and nervous irritation. In answer to this, we must remark that the dosage is wholly different in the two cases. When caffeine is to be used for the purpose of rousing the nervous system, it should be given to the extent of some 5 or 10 grains by the skin, at a time; these doses set the heart beating with considerable force and frequency (possibly by partially paralysing the cardiac branches of the vagus?) In doses of one or two grains it has no such effect, but, on the contrary, acts as a mild general nervous stimulant, and in this capacity relieves pain and insomnia.

“J. M.” inquires, *à-propos* of our notice of Gingeot’s researches on the use of alcohol in acute diseases of children, whether English authorities have expressed any decided opinion as to the correctness of Dr. Gairdner’s strongly expressed opinion as to the poisonous influence of alcohol, in anything like large doses, on young children in fevers. We believe this statement has never been criticised as so sweeping a statement should have been. Only the other day Dr. Lanchester and Mr. Whitling, of Croydon, brought under our notice a series of seventy consecutive cases occurring within six or seven months in a large school. Many of the cases were very severe; all of these were very freely stimulated, but out of the whole number not one ended fatally. This of course does not prove that alcohol was necessary, or even that it was actively useful. But it is a crucial proof that alcohol is *not* actively poisonous to children in typhoid, as Dr. Gairdner seemed to believe.

STRENGTH OF THE SOLUTION FOR INJECTION OF ATROPINE.—A correspondent kindly points out an omission of a word or two in the article on Subcutaneous Injection in our last number, which might lead to some confusion of ideas. The solution of sulphate of atropine recommended is *not* the solution of the British Pharmacopœia, but one of *half* that strength, which is much more convenient.

HERPES ZOSTER AND HOT WEATHER.—Is there any connexion between unusual and prolonged heat, and the prevalence of herpes? In the out-patient department of Westminster Hos-

pital, during the months of April, May, and June, there was an extraordinary number of cases of shingles, nearly twenty having come under one physician during that time, a degree of prevalence of which he has seen no previous example. What makes rather against the theory of the influence of heat is, that during the last very hot three weeks scarcely anything of the kind has been seen, although other forms of rash, which certainly were traceable to heat, have been common.

COLLODION FLEXILE IN HERPES ZOSTER.—The value of this application does not seem so well known as it should be. A great many persons now use it in the treatment of erysipelas, in which of course it acts by excluding the air. But it is really of quite as much importance to effect this purpose thoroughly in shingles. The intolerable burning, which gives so much misery in severe cases, may be greatly reduced thereby; for if the painting with collodion be steadily applied from an early period, not only is the extent of vesication much limited, but of course all change of exposure of a raw surface to the air is cut off. Very probably the ethereal solution of nitrate of silver would effect the same purpose.

FORMULÆ USED IN OPPOZER'S CLINIC.—Two or three of these, which are in very large use by the distinguished Viennese Professor, are worth mentioning. For chronic hoarseness the following is used:—Ext. belladonnæ, gr. j; spermaceti, gr. 80. Mix. A quarter of a small teaspoonful to be taken three times a day. Another prescription for the same purpose is:—Washed liver of sulphur, gr. v.; white sugar, a drachm. Mix. Make six powders; one to be taken three times a day. For chronic laryngitis: Acetate of lead, gr. xv.; anodyne tincture, ʒss.; decoction of althæa, 14 ounces. Mix for a gargle. As a derivative from the alimentary canal in acute pulmonary œdema: Powdered digitalis leaves, pulv. ipecac. of each 8 gr. Infuse in five ounces of boiling water. Add syrup of senega, ʒss. A soup-spoonful to be taken every two hours.

THE REMOVAL OF FOUL BREATH, says M. Preterre, is best accomplished by gargling the mouth with one of the following solutions, and taking coffee subsequently:—Water, 1 litre; phenic acid, 1 gramme: or, Water, 1 litre; permanganate of potass, 10 grammes.

ICE IN DIPHTHERIA.—M. Bleynie, in the *Gazette de Lyon*, supports the opinion of MM. Baudon and Grand-Boulogne as to the value of this agent in these cases. He has tried it in both children and adults, and never found it fail. The patient should be allowed to suck ice constantly until the disappearance of the false membranes. M. Bleynie has also found it useful in croup.

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¹ Any of the foreign works may be procured by application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

THE PRACTITIONER.

SEPTEMBER, 1868.

Original Communications.

CONIUM IN THE TREATMENT OF CHOREA.

BY JOHN HARLEY, M.D. LOND. F.R.C.P.

FROM my investigations relating to the medicinal value of the several preparations of hemlock, and to its physiological action, I have been led, amongst others, to the following conclusions:—

Firstly, That we have for a very long time been using preparations which are completely inert, even when given in the largest doses that can be conveniently taken.

Secondly, That the *extract* and the *succus* of the present pharmacopœia are also inert when given in the doses therein prescribed.

Thirdly, That in order to influence any of the diseases to which it is antagonistic, hemlock must be given in such doses as will produce, within about an hour, its proper physiological effects.

Fourthly, That the quantity required to produce these effects will bear a direct proportion to the muscular activity of the individual.

Now, the quantity of the most active preparation—namely, the *succus*—usually required to produce the full physiological action of the plant, is, compared with the old teachings, so great, that coupling this fact with the foregoing conclusions, I am bound to infer that, with very few exceptions, all previous observations

upon the influence of hemlock in the various morbid conditions for which it is recommended, are of little or no value. It is necessary, I believe, to begin this inquiry entirely anew. As a small contribution thereto, and as evidence, as far as it goes, of the truth of my conclusions, I adduce the following instances of the use of conium in chorea. I have taken the cases indiscriminately, just as they have come before me, and they are the *only* ones in which I have employed hemlock. I have regarded the disease simply as a primary disorder of the nervous centres, and, avoiding the use of all other remedies, medicinal and hygienic, even to the exclusion of a simple aperient or a shower of water, have relied upon hemlock alone. In the history of these cases I have felt it necessary to describe the nervous symptoms as minutely as my space will allow, in order that the effect of the drug may be the more readily traced and precisely determined.

1. *A third attack of Chorea immediately preceding the menstrual nîsus.*

Fanny M——, aged 13 years, a slender but healthy-looking girl. Had had three attacks of chorea, each fresh one exceeding the previous attack in severity. The first occurred at nine and a half years, the second at eleven, and the third and present attack appeared about a fortnight before she came under my care on January 17, 1867. She had always been free from other nervous diseases, and from rheumatism; the heart was quite healthy; all the functions were naturally performed, and there was no known cause for the disease.

At the above-mentioned date the choreic movements were severe, and not only abridged the hours of repose, but often awoke the patient from sleep. The general health had suffered in consequence. The involuntary movements were almost exclusively confined to the left side; the leg was weak and uncertain, and she walked lamely; the wrist and hand were in constant and rapid motion, and as the muscles of the upper arm and chest were involved, the whole member was snatched here and there, and writhed about in various directions. She was unable to pick up such an object as a penholder, and when a larger body was placed within her grasp she was unable to retain it for many seconds. The side of the neck, the

face, and the tongue were frequently contorted by irregular movements.

Treatment and result.—I prescribed fl. ʒj of the succus conii every morning, and increased the dose on the *third day* to ʒiss, giving it on alternate days, in order to judge of its influence on the disease. According to the mother's statement, there was a slight but decided diminution of the choreic movements on the conium days. On the *sixteenth day* there was a manifest improvement, and the patient slept better. As the medicine did not produce any of its peculiar effects, I now increased the dose to fl. ʒij every second, and, after a time, third day. Slight giddiness and dimness of vision followed this increased dose. On the *twenty-sixth day* she was able to pick up small objects, and, with fixed attention, to retain them in her hand; to keep the affected arm, when horizontally extended, nearly steady. The fingers, however, continued in constant play. She steadily improved, and on the *thirty-fourth day* was able to dress herself. On the *sixtieth day* she was quite well, excepting an occasional slight twitch of the angles of the mouth; she was able to thread and use her needle; her sleep was sound and undisturbed, and her general health and appearance much improved. Shortly afterwards, the last trace of chorea disappeared, and the hemlock was discontinued. During the short period she was under treatment, the patient underwent a rapid development, and from being spare, pale, and child-like in figure, assumed quite a womanish build and deportment, and a fresh ruddy hue. The following June she again came under my care for headache and epistaxis attendant upon the menstrual nixus. She continued under treatment (by purgatives and chalybeates) for three months more; but in the interval, and during the whole of the time she remained under my notice, there was no indication of any tendency to a return of the chorea. The catamenia had not appeared at the end of this period.

2. *Chorea, chiefly of the right side, of seven weeks' duration.*

Jane R——, aged 12, a pale, delicate-looking, and slightly-made girl, of rather inactive disposition. Free from all disease until December 27th, 1867. On the previous night she went to bed in her usual health, but on arising in the morning she was, according to her mother's description, "in one work all

over, and could not keep herself still for a minute." Speech was very defective, the mouth drawn to the right side, and she walked very lamely from weakness of the right leg. These symptoms, which were at first very severe, decreased a little in intensity; but for the last seven weeks she has experienced no improvement.

At the expiration of this period she came under my care, and the following was her condition:—The choreic movements chiefly affect the right side. She could not walk many hundred yards without assistance, progressed very slowly, and halted upon the right leg. She was unable to dress or feed herself, to sew, or to write. The right hand and wrist were in constant motion, and the upper arm frequently jerked backwards. On attempting to use this limb it was tossed upwards. The head was frequently jerked down to the right shoulder, the expression as frequently deformed, and the angles of the mouth in continual motion. The tongue was affected with incontrollable writhings; she only spoke when solicited to do so, and then with hesitation, indistinctly, and in a whisper.

The irregular movements often made sleep impossible for a long time, but when once asleep they ceased.

The functions were normally performed. Pulse 72. Heart's action regular, the first sound a little prolonged and sonorous.

I gave her \mathfrak{z} ij succi conii at once. Twenty minutes afterwards giddiness came on, and continued for forty minutes. She continued to walk about during the whole of the time, and neither the pulse nor pupils underwent any change during the action of the medicine. But its effect upon the choreic movements was very decided. She walked so much better that the previous lameness was scarcely observable, was able to hold out the right arm quite steadily, and there was only an occasional slight flexion and twist of the wrist. The muscles of the face were quite tranquil, and the tongue much steadier.

The above-mentioned dose was repeated every morning before breakfast for four weeks, and the dose was then increased to \mathfrak{z} ij every morning, and she continued this dose for the next four weeks. At the end of the *second week* she was so much improved that she was able to pin her shawl, write her name legibly, and

carry a saucer of fluid steadily to her mouth with the right hand ; there was no more halting or dragging of the right leg. At the end of the *fourth week*, the only remains of the disease were a sudden plucking up of the right arm and slight restlessness of the wrist and tongue. She was no longer prevented from going to sleep ; she could dress and feed herself, speak distinctly, and walk briskly and without fatigue a distance of four miles.

At the end of the *fifth week*, she was quite well, and could thread a needle, sew, and write as legibly as ever. She had regained strength, colour, and spirits. I thought it prudent to continue the medicine for some time longer.

It invariably produced giddiness, heaviness, as if from an inclination to sleep, and dulness. She was not, however, allowed to give way to these feelings, but kept in active motion during the whole of the time required for the operation of the medicine. $\bar{\text{z}}$ ij doses caused increased heaviness of the eyelids and giddiness, but did not disable her from walking about. I saw her from time to time up to the tenth week, and she continued quite well.

3. *Severe Chorea of the right side, of five weeks' duration. Rheumatic tendency. Speedy cure.*

Alfred V —, aged 12 years, a moderately - stout and healthy-looking lad, but rather dull and inactive. At the age of six years was laid up for three months with a severe attack of rheumatic fever. Since this he has enjoyed good health, but is liable to headache. Free from nervous disorder until March 1868. About the middle of this month he became affected with choreic movements of the right side of the body, associated with lameness of the right leg, and defect of speech. He continued to get worse up to the 18th of April following, when he came under my care. At this time his condition was as follows:—The head drawn down towards the right shoulder, and constantly maintained in this position, and at intervals slightly jerked round in the same direction ; the right corner of the mouth plucked downwards several times a minute ; the protruded tongue held tolerably steady, but the speech was almost obsolete and unintelligible ; the right arm was flexed at right angles, retained closely to the side, and the hand in constant motion, beating to and fro a hundred times a minute.

In order to restrain the rapid motion of the right hand, the patient clutched the wrist firmly with his left hand, and so nursed the agitated member all day long. He complained of pain in the right elbow, and could not raise nor abduct the upper arm; he was unable to use the fingers, or to retain any object within the affected hand. He walked very lamely, trailing the right leg stiffly along, and this member was occasionally affected with twitchings. There was no sign of rheumatic tenderness or inflammation anywhere. The general health was good; tongue clean and moist; the cardiac sounds normal, but the systole strong from slight enlargement of the left ventricle. The boy was much depressed in spirits from want of rest; he was quite unable to assist himself, and his mother was obliged to hold the right hand for a long time every night, to enable him to go to sleep, otherwise its rapid and incessant motion kept him awake. I at once gave him the succus conii in doses of ʒij twice a day. Each dose produced slight giddiness, and was followed by marked improvement. At the end of *four days* he was bright and cheerful, and after making a strong effort could raise the right arm in a straight line above the head, hold it out pretty steadily at right angles with the body, and pick up a pen and hold it in his hand. The wrist, however, continued to be jerked backwards and forwards sixty times a minute, and he still nursed it as before. The twisted head still overhung the right shoulder, and the twitching of the head and the right angle of the mouth continued. But the speech and walking were much improved.

During the next two days, the patient took ʒiij of the succus conii twice a day, and on the *sixth* day he could walk, and even run, without discernible lameness, and could now hold a pen in the hand, and make a fair attempt to write his name. It was only, however, by means of a very strong effort that he was able, for a short time, to restrain the play of the fingers. He still complained of headache. For the next four days he took ʒiij of the succus thrice a day, and on the tenth day only a little restlessness of the affected hand and wrist remained; the head was now released; he walked well and briskly, and spoke freely and distinctly; the movements of the hand no longer hindered sleep; but from the weakness and unsteadiness of the affected arm,

he was still unable to dress or feed himself. A severe attack of urticaria appeared on the eighth day, and lasted for twenty-four hours. From the *tenth* to the *seventeenth* day *ziv* of the succus were taken thrice a day. "Each dose made him very giddy, and nearly took him off his legs." During this period he rapidly improved, and at its termination all choreic movement had ceased, and he was able to assist himself and others, and to write as steadily as usual. In all other respects he was quite well. I saw him on the twenty-seventh, and again on the thirty-seventh day, and found that he continued well and active, but he had complained occasionally of slight rheumatic (?) pains in the knees.

4. *Chronic and obstinate Chorea, with morbid activity of the nervous system from birth. Prolonged use of Conium. Cure.*

James R—, aged 6 years, a slender but healthy-looking and very intelligent boy. Never had any illness, but was once threatened during dentition with a convulsive attack. From his birth he has been of a remarkably active, restless disposition, and during his waking hours never remained quiet. He is mischievous and destructive. If he has no other occupation, he bites his nails and tears his pocket-handkerchiefs, and even the sheets, as he lies awake in bed, with his teeth. He is affectionate, but, although well managed, is excitable and petulant. He came under my care March 6th, 1868, and for the preceding six months his natural restlessness had become extreme, and was associated with gradually increasing want of control over the movements of his limbs and tongue. Of late the whole body was in a constant writhe. In walking he goes along in a sideward direction, and the left foot is frequently jerked round behind the right ankle, so as to kick any one who walked by his right side, and often causing him to fall. This is very marked on causing him to walk on tip-toes. He has a difficulty in getting the raised left leg down to the ground, and after some delay it is often set down in front of the right, and he then stumbles over it. As soon as the body is fairly supported on the toes, the left foot is screwed inwards and then jerked off the ground. He can only walk a very short distance. As he sits still, the left leg is occasionally jerked upwards. The left arm is similarly affected, and quite useless. If he attempt to

take hold of an object with the hand, the arm is at first thrown into the air, and then as suddenly plucked downwards, and, with a twist of the shoulder, brought behind the back. Without fixed attention, an object held in the left hand soon falls. The right limbs are only slightly affected, but in feeding himself he throws his food about far and wide. The head is ducked and twisted from side to side, and the levator muscles of the face are in almost constant play, tucking in the angles of the mouth and raising the eyebrows. The tongue is constantly on the writhe. His speech, which is naturally ready, clear, and distinct, is now hesitating—occasionally even to stuttering—coarsely sibilant, and, some days, so indistinct as to be almost unintelligible to his parents. The patient sleeps fairly, but the limbs are affected with slight jerks. Of late he has complained of headache, and the forehead is hot. The appetite is good, and the functions regularly performed. His *weight* is just under three stone, being a little *less* than it was *this time last year*. The heart sounds are healthy; the pulse 74 to 80, often a little irregular in speed. There is no apparent cause for his disorder. He has been under medical care for some time past, with the usual treatment for chorea (including shower-baths and anthelmintic purgatives), but has derived no benefit.

I prescribed \mathfrak{z} iss of succus conii *every* day an hour before dinner, and increased the dose to \mathfrak{z} ij on the *third* day; on the *seventh* to \mathfrak{z} iiij, and on the *tenth* to \mathfrak{z} iiiss. Previous doses produced no apparent effect, but after that last mentioned he admitted that he felt a transient giddiness, and the involuntary movements seemed a little diminished. On the *fourteenth* day I increased the dose to \mathfrak{z} iv. He occasionally complained of slight giddiness a quarter of an hour after this dose, and he began to manifest a slight improvement during the action of the medicine. On the *twenty-first* day the dose was increased to \mathfrak{z} v. At first it produced within twenty minutes decided giddiness, with double vision, and a little weakness of the legs. Subsequent doses did not produce double vision, but the eyes had a dull, heavy, vacant appearance for about ten minutes, but there was no tendency to sleep, and he continued of his own accord to walk about. A marked improvement was now perceptible.

The headache and heat of forehead had left him, and he was generally quieter, and had much greater control over the left leg, and consequently walked better. The left arm, however, remained almost as useless as ever. On the *twenty-fifth* day I gave the patient $\bar{z}vss$ of the succus, and made him use his left hand in taking it. He held the glass pretty steadily, and keeping the arm close to the side, brought the mouth down to meet the glass, and so managed to drink the draught. In presenting me with the glass the forearm was so suddenly thrown forwards, that the vessel was nearly jerked out of his hand. This dose produced giddiness and staggering, followed by perfect quietude for ten minutes, as if he were about falling off to sleep; but he soon got up and continued to walk about awkwardly for the next half-hour, when the effect of the medicine passed off. During its operation, and the following hour, the tongue and left arm were held steadier than I had ever seen them. From the *twenty-sixth* to the *forty-fourth* day, the little patient took $\bar{z}ivss$ of the succus twice a day—an hour before breakfast, and again at 4 P.M. During this time his further progress was slow; but at the end of the period he could walk and talk much better, and was beginning to use the left hand. The startings during sleep had also left him. During the *following month* he took $\bar{z}ivss$ of the succus thrice a day, before breakfast, at noon, and at 7 P.M. No very decided effect followed any dose, but he continued to improve, and at the end of this period an occasional hesitation of speech, and slight jerking of the left arm, were the only observable remnants of the chorea. I continued the conium *another fortnight* in doses of $\bar{z}vj$ thrice a day. Every dose produced a decided effect. A quarter of an hour afterwards he was so giddy and tottering that he was obliged to lie down; the eyes were heavy, hazy, and expressionless, as if affected by sleep. But after lying quiet for twenty minutes he would get up, resume his occupations, and make no more complaint. Under the influence of these large and oft-repeated doses he rapidly and completely recovered, not only from all traces of chorea, but from the excessive restlessness which had possessed him for many months previously. During the whole of the time he was under treatment (twelve weeks) his general health improved, and he gained in strength

and in weight, and there was a notable improvement in the appetite. The conium had no effect on the pulse, pupils—as far as my observations extended—nor upon any of the secretions. At first the improvement in this obstinate case was so slow that I began to despair of obtaining much relief from conium. However, after carefully watching the effect of large doses, I was encouraged to continue its use, and had the satisfaction of proving that when given in such doses as produced decided physiological effects, the morbid excitability of the motor centres was rapidly subdued. During the twelve weeks the patient was under my care he took upwards of five pints (104 fluid ounces) of the succus conii. And 3v or 3vj of the same preparation invariably produced decided hemlock symptoms, occasionally even to tottering, in several adults. This case proves:—1st, That apart from its effect upon the motor centres, conium possesses no direct influence upon the circulatory, nutritive, or secretory functions; and 2ndly, That its use may be prolonged with safety. Its effects are transient and powerful, and it is entirely destitute of what has been called “cumulative action.”

The two following are instances of *chorea associated with a strong tendency to convulsive action from undue sensibility of the motor centres*:—

5.—Annie S., aged $3\frac{1}{4}$ years, a pallid, nervous child. She had never walked well, and at the time she came under treatment was almost unable to do so without assistance. She was affected with great restlessness and general choreic movements—of a very spasmodic character—of the limbs. During sleep she talked, gnashed the teeth, and clenched the hands; and the arms and legs were affected with frequent jerkings. During dentition she had six or seven convulsive attacks, and it was evident that she was now strongly predisposed to a return of the fits. Under the influence of 3ss doses of the succus conii, there was a rapid improvement.

6.—John H., aged 8 years, had enjoyed good health, and was free from nervous disorder until eight months before he came under my notice, but had never been able to walk well. For the last eight months he had been affected with choreic movements of the limbs, twitchings of the facial muscles, great restlessness, and, from increasing weakness of his legs, almost an

inability to walk. I prescribed $\bar{3}j$ of the succus conii, and soon increased it to $\bar{3}iss$ twice a day, and ultimately to $\bar{5}ij$. The $\bar{3}iss$ doses produced slight and transient giddiness, and a perceptible diminution of the restlessness and irregular movements. $\bar{3}ij$ caused a little tottering, giddiness, and heaviness of the eyes, and arrested the startings of the flexor tendons, alongside of the radial pulse. The treatment was continued for two months, at the end of which time the child walked well, and was otherwise quite recovered.

All these cases show, and the last two most evidently, that when muscular weakness is the result of exhaustive irritability of the motor centres, we have in conium a remedy which, in allaying and removing that irritability, is thus indirectly a restorer of muscular power.

SULPHATE OF SODA AS A MEANS OF REMOVING OPACITIES OF THE CORNEA.

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THE frequency of the occurrence of opacities of the cornea in persons of all ages, and the serious impairment of vision that results from even the slightest troubling of this membrane, if it occupy any considerable portion of the centre of its surface, together with the circumstance that this form of disease is obviously quite superficial, and therefore easily accessible to topical treatment, have all contributed to render it one of those affections for the removal of which a large number of remedies have been suggested, each of which, after remaining in fashion for a time, has gradually dropped into disuse, to make way for another whose efficacy was supposed to be greater, and to be itself again revived after the lapse of a longer or shorter period. Some of those, once recommended by physicians and surgeons, are still employed by the poor in remote country places. As an instance, I may mention that a short time ago a boy was brought to me stated to have been cured of a cataract by the use of an external application. I was curious to know the nature of the remedy that had been used for the removal of what had obviously been only a well-marked corneal opacity, some remains of which were still present. After a little trouble the woman who had effected the cure was induced to attend at the hospital and, for a small donation, to part with her secret. The "certain cure for cataract" turned out to be the *Chelidonium majus*, one of the poppy tribe, a small quantity of the yellow and some-

what acrid juice of which was daily squeezed upon the everted lid, after which the eye was closed by a bandage for an hour. In other cases, hyssop chamomile, and fennel, are employed, all of which are mentioned in the older works on diseases of the eye.

An additional reason why a great variety of treatment has been adopted for corneal opacities may perhaps be found in the fact that spontaneous cure is, in many instances, observed to take place, which, rendering it difficult to estimate the precise value of any particular method, tends to establish faith in all that are not positively injurious. It is not difficult to see where harmful effects are produced, but we are not always able readily to perceive the amount of assistance we have rendered to natural processes, or whether we have in any degree accelerated those healthy actions by which the complete restoration of the transparency of the opaque membrane is accomplished.

That it is a matter of considerable importance to clear the cornea of opacity is shown by the diseases, which may fairly be regarded as secondary results of this state, and amongst which we may include strabismus, oscillation of the globe, asthenopia, or fatigue of the eyes after short exercise in reading or in examining small objects, and finally, staphyloma corneæ, which is peculiarly liable to occur in eyes with extensive leucomata, in which repeated attacks of inflammation have occurred.

Before proceeding to comment on the action of the salt named at the head of this paper, and which has now been for some time in use, it will not be inappropriate to point out that considerable variety exists in the nature of opacities of the cornea; and that whilst of some forms, limited to the epithelium and superficial lamellæ, it may be predicted with confidence that time alone is required for their complete and perfect cure, especially in young and otherwise healthy subjects, there are others, where the general substance of the cornea has been opacified, that are of a more permanent nature, but whose removal, like the foregoing, may be materially accelerated by the judicious employment of local remedies; whilst in others again, as in those produced by metallic stains, by burns, or by the action of lime or potass, or in cases of pterygium, the

opacity is of so fixed a character that they are either wholly incurable or require surgical interference and the use of the knife. True corneal cicatrices, occasioned by direct injury, as by burns or cuts, or by perforating ulcers, or sloughing of a portion of the membrane,—especially when the iris has become adherent to the sides of the ulcer, and which, when all inflammatory symptoms have subsided, appear as white or greyish spots, frequently more or less vascular, with a black centre,—are perfectly incurable, and it would be mere waste of time to attempt their removal, since the opacity presents the characters of connective tissue, and implicates the greater part, if not the whole thickness, of the cornea. The most that may be done here is to attempt the formation of an artificial pupil by the removal of a portion of the iris opposite any segment of the cornea that may still remain clear; yet in one case, which is still under my care, and where the sulphate of soda treatment has been adopted, the considerable improvement which has resulted in the transparency of the lateral portions of the opacity, causing a much larger portion of the iris to be visible, and thus rendering the disease less conspicuous, has been, though unaccompanied by any improvement in sight, gratefully acknowledged by the patient. It need scarcely be said that any still acting cause producing the opacity should be carefully looked for, and, if present, removed. I have seen several cases where lotions, blisters, and a variety of local remedies had been perseveringly applied without effect, where the opacity, on examination, proved to be the result of one or two inverted lashes, which, playing over the surface of the cornea, constituted a permanent source of irritation, and the removal of which effected a speedy cure.

It is well known that the degree of impairment of vision in cases of opacity of the cornea is by no means commensurate with the intensity of the opaque part. In some cases a comparatively faint opacity will produce a much greater dimness, especially if the cornea is also faceted, than one of great depth, but of more limited dimensions. If a portion of the cornea opposite the pupil be perfectly clear and possess its natural convexity, vision is often nearly as good as in the opposite or healthy eye; and even when it is completely concealed by the opacity, a drop of atropine solution will sometimes, by

enlarging the pupil beyond the margin of the opacity, effect great improvement.

The structure of the cornea may be shortly described as consisting of a series of transparent lamellæ extending over a larger or smaller area of the membrane, and easily seen in fresh sections, but rendered still more apparent in specimens that have been soaked in solution of chromic acid, and after fine sections made have been put up in glycerine and gum. The lamellæ are separated by spaces which offer a different form according to whether the cornea has been sliced parallel to, or at right angles with, its surfaces. In the former case they appear stellate, in the latter fusiform. These lacunæ, or rather their numerous prolongations, intercommunicate freely with one another, and, there can be little doubt, form a continuous series of channels analogous to the vasa serosa of the older writers, by which nourishment is conveyed to those portions of the cornea which are most distant from the blood-vessels. In these spaces lie masses of protoplasm, which, under favourable circumstances, exhibit slow and gradual changes of form. The cornea is covered in front by six or seven layers of epithelial cells, of which the deeper layers are nucleated and distinctly columnar in form, whilst the superficial layers are more polygonal or flattened, and confer the exquisite brilliancy and polish possessed by the surface of the eye. Behind, the cornea is lined by an elastic lamina of considerable thickness, which is itself covered by a single layer of epithelial cells forming the boundary of the anterior chamber of the eye. The cornea is traversed by numerous fine branches of nerves.

The changes that take place in inflammation of the substance of the cornea are, even in the early stages, visible to the naked eye, and consists of a troubling or haziness of its texture, obscuring the delicate markings of the iris, with loss of polish and a granular appearance of the surface. The vessels of the periphery are more or less strongly injected, and form a well-marked circum-corneal zone. At a later period the opacity becomes intense, from the softening of the lamellæ and deposit of pus between them. Under the microscope the epithelium of the surface is found to be hypertrophied, and on section the spaces between the lamellæ are

seen to be enlarged, and filled with nuclei and imperfectly formed cells, proceeding from the proliferation of the ordinary corpuscles, and at a later stage, especially if the inflammation be violent, with pus corpuscles. If the inflammatory processes continue unchecked, the lamellæ break down at some point or points, and then either a small abscess may be formed, which may burst through the anterior surface, forming an ulcer, or through the posterior, in which case an hypopyon is formed, the pus sinking to the bottom of the anterior chambers; or if neither of these results occur, the products of inflammation may undergo slow organization into fibrous tissue, or may become the seat of fatty, and subsequently of calcareous deposit, which appears as a dense opacity, composed of a finely granular material, mixed with the débris of cells, and of the corneal tissue.

We have daily evidence in the purulent ophthalmia of infants, that opacities of the cornea, even of considerable extent and of intensity sufficient to completely conceal the iris, may vanish entirely; and even in adults, the same phenomenon may more rarely be observed. Thus, in a young girl, recently under the care of Dr. Ogle, in St. George's Hospital, for typhoid fever, and in whom the globe of the right eye was much exposed from the contraction caused by an old abscess beneath the malar bone, attended with loss of the greater part of that bone, severe keratitis set in soon after convalescence had commenced. The whole cornea was opaque, and sloughing was imminent. Under large doses of quinine and free supply of wine, the progress of the affection was stayed, and the cornea has now, with the exception of its lower segment, almost completely regained its transparency.

In this instance, during health no inconvenience had been experienced from the exposure of the globe, but when the patient was debilitated by disease, the cornea, as one of the parts most remote from the supply of nourishment, yielded to the irritation of dust and floating particles, and became violently inflamed, its lamellæ being separated by layers of pus corpuscles. As strength returned, and under the influence of powerful tonics, aided by a good constitution, the satisfactory result above mentioned was obtained. Similar states are not unfrequently

met with in the course of rheumatic fever, when ulceration of the cornea has occurred, and it may frequently be observed that the opacities of the cornea occurring in the course of that disease, and apparently produced by the formation of pus between the lamellæ, almost entirely disappear, even in old patients.

The prospects of the cure of a corneal opacity depend in great measure, not so much upon the violence of the original inflammation, but rather upon its duration. So long as the opacity is caused only by the accumulation of lymph, or even of pus corpuscles between the lamellæ of the corneæ, the lamellæ themselves remaining uninjured, and only separated from one another, perfect recovery of the transparency may occur; whilst, if the lamellæ have to any considerable extent broken down, and their places have become occupied by connective tissue, the probability of ultimate recovery is rendered extremely doubtful.

It may then be stated generally that in all opacities produced by present or recent inflammation, it is expedient to wait for a while, to see the extent to which the natural powers will effect a clearance of the opacity, either by absorption of the effused material, or by restoration of the ulcerated and destroyed tissue. The forms most likely to be benefited by local stimulant or irritating treatment, are those which are included under the terms *nebula* and *albugo*, the former signifying simply a diffused haziness, or bluish cloud on the surface of the membrane; the latter implying a more dense opacity, often affecting the lamellæ to a considerable depth. The posterior elastic lamina of the cornea does not appear to be capable of undergoing an inflammatory change, and the white spots on its posterior surface, which are sometimes observed in the progress of glaucomatous affections, and were formerly considered diagnostic of *aquocapsulitis*, are produced by alteration of the epithelial layer and deposit on the surface. These are obviously beyond the reach of any external or topical application, which in fact, if of an irritating character, would only serve to aggravate the disease, of which the deposits are only a symptom. The following cases will afford examples of the effects of treatment of corneal opacities with sulphate of soda:—

Cordelia G——, æt. 47, applied at St. George's Hospital, in December 1867, for opacity of the cornea, the result of accident ten years previously, which was followed by severe inflammation. The cornea was uniformly so dull, that the position of the pupil could only just be discovered, and she was unable to see any type. No inflammation was present. The use of sulphate of soda was commenced, and continued for two months. At the expiration of this time the cornea had so far cleared that she was able to make out the heading of a newspaper, and by the end of July could discern No. 4½ of Snellen's test types, which is the size of large ordinary print.

Case 2.—E. L., æt. —, the son of an Italian carver, suffered in April and May from severe keratitis: as a result a large nebula on the lower part of the cornea was left. In the middle of July, he began the use of the sulphate of soda, which was steadily continued. At the end of August the cornea was almost perfectly clear, only a scarcely appreciable speck remaining, which there is little doubt will ultimately vanish.

Case 3.—The following will show the effect of the sulphate on an ordinary case of nebula left after superficial keratitis. W. T. applied at St. George's on the 23d of January, 1868, with a nebulous opacity of both cornea, which, though not very intense, was yet sufficient to prevent him from being able to distinguish more than the largest test types, about one inch in height, at one foot. The conjunctiva was slightly inflamed, and there was much intolerance of light. This condition was relieved by the application of a few leeches, washing the eye with alum lotion, and rest in a darkened room. As soon as the inflammatory symptoms had subsided, on the 31st of January, the use of the sulphate of soda was commenced; and on the 14th of February he could distinguish the letters of the fourth size with great facility, and one month later was able to see the 8½ types.

Even in very dense leucomata, steady perseverance in the use of the sulphate effects some improvement, as is indicated by the following case:—A. L., aged 25, has for two years had a leucoma. On the 17th of April she commenced the use of the sulphate, having then only quantitative perception of light. On the 17th of July she stated that she could readily

discern different colours, and could even see large objects when in motion. She is still continuing the use of the remedy.

It would be wearisome to the reader to introduce many notes of cases which all resemble the foregoing, and have only one or two salient points. Suffice it to say that the general results have been favourable, and I have only in one or two instances been compelled to discontinue its use on account of inflammation being set up. Experience has shown that in the employment of this salt the quantity that should be introduced at one time into the eye should not exceed one or two grains, and the most convenient mode of application consists in everting the upper lid, and brushing the powder lightly over the surface with a camel-hair pencil. The application may be repeated every or every other morning, or twice a week, according to the degree of reaction that follows. The immediate effect is to produce a considerable degree of redness and sharp smarting pain, with lachrymation, lasting for half an hour or more, and therefore more persistent, though less in degree, than that produced by the vapour of bisulphide of carbon, or the *vinum opii*. After the continued use of the remedy for some weeks, the opacity is observed to become fainter, and the patient is himself able to feel the improvement by his capability of reading types, the letters of which he was previously quite incapable of deciphering. In some cases, when the reaction produced by the introduction of the pure salt is too violent, it may be lowered by adding a little starch, or by the employment of a solution of gr. 5 to 3iv. I am inclined to think that its action is essentially that of an irritant, and that it exerts little or no solvent action on any of the forms of opacity which may be cured by its application. If a small quantity of the exsiccated and pounded sulphate be placed on the tongue it feels rough, and under the microscope it appears in the form of angular fragments of no determinate crystalline form, but of very variable size. On the addition of a drop of water the particles coalesce and form a solid cake, which can be moved from place to place on the slide with the point of a needle, and as the water evaporates long striated prisms appear at the margin. It is easy to conceive that the introduction of such a crystalline powder on the inner surface of the lid produces intense irritation, accompanied by copious lachrymation, and a

great temporary increase of vascularity in the conjunctiva. Moreover the salt is very insoluble. I found it difficult to dissolve twenty grains in a drachm and a half of distilled water; and lastly, on soaking for many hours fine sections of leucomatous cornea, which had been preserved in chromic acid, I found no increase in transparency, though the application of glycerine and gum to similar sections rendered them in the same space of time exceedingly clear. It seems to me to act to the full as energetically as solution of bichloride of mercury, and as the vapour of the bisulphide of carbon, whilst it is free from the inconvenience of the fœtid odour of the latter, and the danger attendant upon the use of lotions containing the former.

ON THE PERCHLORIDE OF IRON IN PHTHISIS.

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THE object of this brief communication is not to suggest a new or untried remedy, but to illustrate by statistics the value of the perchloride of iron in chest disease.

Having prescribed iron in its various forms for more than 20,000 patients, and tabulated the results in many hundreds of cases, it seems permissible to speak with some confidence of the general superiority of the perchloride (or sesquichloride) over the other salts of iron.

This preparation is so universally applicable, that, with management, it may be given in almost every case in which steel can be borne.

Besides its far greater efficiency, it is not more apt to disagree than the nitrate, citrate, or carbonate, and much less so, as a rule, than the sulphate. Reduced iron may be given, like steel wine, almost with impunity in every case, but its chalybeate effect appears somewhat doubtful; at any rate it is so inferior to the perchloride that it cannot be compared with it.

Among hospital out-patients it is almost surprising how rarely iron disagrees; delicate women in advanced consumption, with weak and irritable stomachs, take it with avidity, and can scarcely be persuaded to leave it off when other special remedies are called for, nor, indeed, is it often necessary to omit it.

It is no easy matter to form a correct estimate of the amount of benefit derived from the use of a remedy. In the cases

which follow, the conclusions as to the degree of benefit have been based, not on variation in weight or in the physical signs, but on the general symptoms. Where the benefit has been very manifest and striking, the case has been entered as "much improved." Where the benefit has been less marked, though real, as "improved," and if no benefit has been gained, as "not improved."¹

On comparing the effect of the salts of iron with other simple remedies, we arrive at the following percentages:—

Taking all the forms of iron exhibited (1,511 cases), 23·24 were much improved, 54·6 improved, and 21·1 not improved. Under chloric æther (℥v.), in infusion of quassia—9·285 much improved, 60·71 improved, 30·0 not improved. Under dilute nitromuriatic acid (℥v.), with chloric æther and quassia, every four hours—14·1 much improved, 59·8 improved, 26·0 not improved. Under carbonate of ammonia (gr. iiss), with chloric æther and quassia, at like intervals—15·9 much improved, 52·1 improved, 34·7 not improved.

The following conclusions may be deemed of interest, as showing the relative value of the different combinations of the perchloride of iron. This prescription—℞ Liq. ferri perchlor. ℥v.; spir. æth. chlor. ℥iiss; aqua ad ʒij: 4th quâq. horâ sumd.—was given in 212 cases. 50 (23·5 per cent.) much improved, 128 (60·3 per cent.) improved, 34 (16·03 per cent.) not improved. On replacing the water of the previous prescription by infusion of quassia (in 387 cases), 93 (24·03 per cent.) were much improved, 209 (54·005 per cent.) improved, 85 (21·96 per cent.) not improved; or on the addition of quinae disulp. gr. ¼ to each dose of the prescription (given in 124 cases), 27 (21·77 per cent.) much improved, 64 (51·61 per cent.) improved, 33 (26·61 per cent.) not improved. On the addition of ammon. hydrochlor. gr. iiss. (given in 192 cases), 69 (35·93 per cent.) much improved, 79 (40·62 per cent.) improved, 44 (22·91 per cent.) not improved.

Thinking it might be of interest to ascertain whether the effect of the iron was greater in the debility of phthisis than in other forms of debility in which iron was thought desirable,

¹ A similar plan, was adopted by Dr. J. Jones, in his work on "Iron in Consumption." London, 1862.

I have separated the phthysical and non-phthysical cases in a series of 590 cases, in which the perchloride of iron, with chloric æther and quassia, was given three times a day, in doses varying from 10 to 20 drops of the liq. ferri perch. Of the *phthysical* cases—41 (17·3 per cent.) were much improved, 136 (57·3 per cent.) were improved, and 60 (25·3 per cent.) not improved. And of the *non-phthysical*—70 (19·8 per cent.) were much improved, 209 (59·2 per cent.) were improved, and 74 (20·9 per cent.) not improved.

And the differences between these percentages are slightly in favour of the latter (the non-phthysical) series. But the difference is not such as to enable us to base upon it any conclusion as to the superior value of iron in ordinary debility than in the debility of phthisis, when we come to compare the influence of iron with that of other drugs. The following statistics may prove of interest :—

The percentage under the three heads, with a solution containing $\frac{1}{50}$ th grain of strychnine, given every four hours, was—11·4, 34·2, 54·2 in phthysical cases, and 15·06, 43·8, 41·09 in non-phthysical cases. With the mist. gentianæ alkalina, of the Brompton Hospital Pharmacopœia (which consists of sod. carb. gr. x, acid hcy. ℥vij. in ʒss of infusion of gentian)—7·1, 64·2, 28·5 in phthysical, and 12·5, 41·6, 45·8 in non-phthysical cases. Under ounce doses of camphor julep, the figures are :—8·3, 83·3, 8·3 in phthysical, and 23·6, 63·1, 13·1 in non-phthysical cases. Lozenges of reduced iron, with chocolate, given in a smaller number of cases—0, 50, 50 in phthysical, and 20, 20, 60 in non-phthysical cases.

That cod-liver oil and iron are now so universally admitted to be *the* remedies in consumption is a good illustration of the fact that—so far at least as common maladies are concerned—rational therapeutics is taking the place of that unreasoning credulity which would seek a specific for every ailment. The real specific treatment of phthisis is to put and keep the body in as perfect a state of health as possible; the weak digestive and assimilative power of the consumptive is due to poverty of the digestive juices, and is best remedied by enriching the blood, whence these fluids are derived.

The improvement of appetite, diminution of flatulence, &c.

which occur under the perchloride of iron is often remarkable ; cod-liver oil, and other fats previously refused, being digested without discomfort. It both checks diarrhœa and relieves constipation (by giving tone to the feeble muscular fibres of the bowels) ; it lessens night sweats—though these often call for oxide of zinc in addition—and is a valuable remedy in hæmoptysis.

It appears, too, to exercise a controlling influence over the inflammatory attacks so common in the course of phthisis. What we call “inflammation” depends primarily on an altered relation between the blood-vessels and their contents, and may be “nipped in the bud” by converting unhealthy into healthy blood.

Tubercle is, according to Lebert, an inflammatory product born to die ; being of feeble origin, it is incapable of resisting adverse circumstances, and therefore short-lived. Is it not rational, then, to expect benefit from supplying to the blood an element of stability lacking in the fluids of those who have been bred in low-lying, humid, sunless regions ?

Iron cannot be rapidly assimilated in large quantities by feeble persons, but must be taken, like food, hour by hour, day by day, and year by year, till the blood is no longer poor, the tissues no longer short-lived and unresistant, and until what is called the “tubercular dyscrasia” is overcome.

ON THE THERAPEUTICAL USES OF THE ERGOT OF RYE.

BY ALFRED MEADOWS, M.D., M.R.C.P.,

Physician to the Hospital for Women, and to the General Lying-in Hospital.

It is not a little remarkable, and certainly does not say much for our knowledge of Therapeutics, that we should be in comparative ignorance of the *modus operandi* of some, and in complete ignorance of that of many, of our most valuable medicines. Indeed it may safely be said that, excepting those drugs which act chemically, there are very few whose physiological or therapeutical action is clearly understood. The amount of attention, however, which is now being directed to this, the most important branch of medical science, encourages us to look forward to the most hopeful results. It is with the desire of contributing somewhat to that end, and, still more, in the hope that others may be induced to carry on the investigation, that I venture to offer these remarks on the therapeutical action of a drug which may, I think, be taken as a fair illustration of the amount of knowledge we possess of some very active remedies.

During the last few years I have made extensive use of the ergot of rye in a great variety of cases, and the result of my experience is the belief that we have in this drug an agent of more general utility than is commonly supposed; and that its therapeutical use ought by no means to be limited to obstetric practice, though its well-known effects upon the gravid uterus may help to explain, and is indeed the key to a solution of, its *modus operandi* in other cases not even necessarily uterine.

We may regard the effect of the ergot of rye upon the parturient uterus as exemplifying on a very large scale its principal physiological action, which is the power of exciting contraction of involuntary or unstriped muscular fibre.

Now the uterus is by no means the only, though, especially in the gravid state, it certainly is the principal, example of this variety of muscular fibre; we have it also existing in the bladder, the gullet and stomach, the intestinal canal, the bronchial tubes, the ducts of many glands, the iris, and, what I believe it is especially important to remember, the middle coat of arteries; we have also in the heart a great involuntary muscle, though its fibres are not of the unstriped variety.

It is probable, I think, that the ergot of rye affects the muscular fibre found in every one of these structures in a greater or less degree. It certainly does not affect them all equally, either in the same or in different persons.

There are few things more difficult of explanation than the mode in which drugs produce their peculiar and specific effects; take for instance the one now under consideration. How is it that ergot produces contraction of the uterus? contraction, that is, of unstriped muscular fibre? The force of the uterine contractions is of course due simply to the mass of the muscle, the dynamic agency being precisely the same wherever the ergot meets with tissue on which to exercise its influence; there is no difference in kind, but only in degree; and we shall probably best understand the smaller, more subtle, but not the less valuable effects by carefully noting what takes place in the grander and more obvious ones.

Now there are two modes by which it is conceivable that the ergot of rye may cause contraction of muscle—either (1) it may act directly upon the muscular fibre, in the same way as muscle is made to contract by other stimuli; or (2) it may act through the nervous tissue, principally, if not entirely, on the ganglionic system. In either case it is of course carried by the blood-vessels, and here again its action upon them, which, as we shall see, leads to a diminution of their calibre, may be effected either by the medium of the nerves of the vessels, or directly upon their muscular coat.

The effect of the ergot of rye upon blood-vessels is very

marked. I subjected a frog to its influence in the following manner. Having extended the web of its foot under a microscope, I injected subcutaneously one grain of ergotine in solution. The effect was apparent in a few minutes; at first the circulation became much quicker, then, very soon, it seemed to stop for a few seconds, and the larger vessels were much diminished in size; for some minutes the circulation was disturbed, it was irregular, spasmodic, the blood now and then retrograding, then advancing. In this fluctuating condition it remained for upwards of half an hour, when the effect gradually passed off, and the current went on steadily and uniformly again. This experiment I have repeated twice in the same frog, and again in another frog, with the same results. I believe, therefore, that I am entitled to regard these results as the direct effect of the action of the ergotine, and that the phenomena in question were attributable principally to the alternate contraction and relaxation of the muscular coat of the arteries, but partly, perhaps, to some change in the heart's action.

There is abundant evidence to prove that ergot of rye influences very powerfully the cerebro-spinal system, and this it does apparently through the medium of the blood-vessels. Brown-Séquard observed that the vessels of the pia mater of the dog became much smaller under its influence, and, further, that the reflex action of the spinal cord was considerably diminished. Hence he was led to employ this remedy in cases of chronic congestion or inflammation of the spinal cord and its meninges, and obtained, he says, results greater than he had even dared to hope for. He accordingly recommends it in all cases where it is desired to diminish the amount of blood present in the spinal cord or its membranes.

I have only had experience of this drug in one case of nervous derangement, and in that instance the results were striking enough. It was a case of paraplegia, but complicated with menstrual irregularity, for which alone the ergot was administered. There was no reason to suspect the existence of any organic disease of the nervous system, and I regarded the paraplegia as the reflex effect of the catamenial disturbance. The result of the treatment was the restoration of the catamenial function, and the gradual disappearance of all sign of paralysis.

How far this latter was due to the former, or how much it was the result of the influence of the ergot on the nerve-centre, I cannot tell. The improvement began within two months by the return of menstruation, which had been absent for two years, and the paralysis grew less and less with each return of menstruation.

Some time ago, I was administering the ergot of rye in a case of uterine atony, accompanied by rather profuse menorrhagia, when the patient complained of such severe pain in the præcordial region that I was obliged to discontinue its use. I was a good deal struck by the coincidence, and could not doubt, from the regularity with which the pain followed the administration of the drug, that the two were related as cause and effect. The pain was similar in character to that which goes by the name of spasm of the heart: it was short, sharp, and spasmodic, producing a feeling of suffocation and much general distress, allied in some respects to the symptoms which attend angina pectoris.

Since then I have met with other cases where the same complaint has been made, though the effect has been less severe. I cannot, therefore, doubt that the ergot of rye does exercise some kind of effect upon the heart; and though its action may perhaps be somewhat uncertain, it seems likely to be of use in properly selected cases of enfeebled cardiac action, where there is either degeneration of tissue, or where the walls of the heart are thin and flabby.

With regard to the effect of ergot upon the stomach, I have only been able to trace one such, viz. vomiting. This, however, is far from common; a feeling of nausea is of much more frequent occurrence, and both are, I believe, the direct effect of the drug upon the muscular coat of the stomach. These symptoms occur almost immediately after administration, and sometimes there is pain as well. It is quite possible that in small doses ergot might act as a tonic upon the stomach; but, as we have many other remedies which answer better in this way, it is perhaps not likely to be used much for the purpose.

Considering the extent and character of the muscular coat of the intestinal canal, we might expect some marked results in this direction from the employment of ergot, especially perhaps in cases of constipation, such as are frequently met with in

chlorotic girls, where the sluggishness seems entirely due to atony of the muscular fibre, similar to that which occurs in the case of the uterus. On several occasions where I have administered ergot in combination with steel in these cases, and without any purgative medicine, I have observed such a result. Ordinarily, as is well known, steel has by no means a laxative effect; on the contrary, its tendency is certainly in the opposite direction, and I can hardly attribute the results above mentioned to it. The combination of these two drugs, however, I have found to be extremely valuable, each seeming to assist the other, and in such cases as that just referred to they are remarkably efficacious.

Still more noteworthy is the effect of ergot upon the bladder. In cases of incontinence from simple want of power in the muscular coat, from general atony, from chronic catarrhal inflammation, or in cases of reflex paralysis of the bladder, I have seen much good result from small and oft-repeated doses of ergot of rye and tincture of steel. I believe that, in combination with buchu, uva ursi, pareira-brava, and triticum repens, we have a most valuable adjuvant in the ergot of rye in a variety of cases of bladder disease.

Incontinence, or at all events frequent micturition, is a very common, and often a very troublesome accompaniment of many uterine affections. It is especially so in cases of antifixion, and in fibroids of the anterior wall of the uterus, in both of which pressure is made upon the lower part of the bladder, and a loss of its power results. I have often given the ergot of rye in these cases, and have frequently, though not invariably, found it to answer; it is a remedy, therefore, which I think deserves to be more extensively employed in such cases, and I trust these remarks will induce those who are often consulted for affections of the bladder to test its value, it being understood that its efficacy, if it has any, depends upon the fact that it has great power over the muscular coat of that viscus.

But, whether it be from the nature of the cases about which I am more generally consulted, or whether it is that the remedy in question is really of most value in some diseased conditions of the uterus, certain it is that in none that I have met with have the results of the administration of the ergot of rye been so

satisfactory as in some properly selected cases of uterine disease. I fully believe it to be one of the most valuable remedies we possess for a class of cases which have the merit of being the most common and the most troublesome we are called upon to treat.

Bearing in mind the distinguishing feature in the physiological action of this drug, viz. its remarkable power in exciting contraction of the gravid uterus, we can well understand that it is an agent of great power, for good or evil, in certain diseased conditions of that organ, in the unimpregnated as well as in the gravid state.

The cases in which I have used the ergot of rye with good results are the following:—Cases of sub-involution, of chronic sub-acute metritis, and of so-called hypertrophy of the uterus. I have used it also in cases of fibroid tumours, of polypus, and occasionally in cases of pregnancy, during the early weeks of gestation, where there is a history of oft-recurring abortion, which seems to be due to an atonic condition of the uterus. It may be well to make one or two remarks on each of these.

Sub-involution, chronic sub-acute metritis, and hypertrophy of the uterus are essentially diseases of mal-nutrition, though they are brought about in different ways, accompanied by different symptoms, and lead to somewhat different results; they are, however, alike in this respect, viz. that they are invariably associated with increased vascularity of the organ, though this is mostly of the passive or congestive kind; they are consequently liable to excessive discharges, either of mucus or blood; and they are further characterised by increased bulk of tissue.

In sub-involution, the uterus is uniformly enlarged, both as regards its walls and their containing cavity: the muscular and the mucous structures maintain their relative proportions, but both are abnormally thickened. In chronic sub-acute metritis it is the mucous membrane which is primarily and principally affected. In the so-called hypertrophy, on the contrary, the muscular rather than the mucous structure is most involved.

Now in all of these the ergot of rye acts beneficially: first

by lessening the vascularity of the organ, which it does by its power of diminishing the calibre of the blood-vessels; and secondly, by inducing a state of tonic contraction of the uterus itself; it seems, indeed, to be essentially a uterine tonic; improving the general nutrition of that organ, and imparting a firmer and more healthy tone. It is in this belief of its action, and with this object in view, that I have prescribed it, sometimes by itself alone, sometimes in conjunction with other remedies, the latter always occupying a subordinate position.

In cases of fibroid tumours of the uterus, and in polypi, I have been in the habit of prescribing this drug, when my object was to excite contraction of the uterus, with the view, if possible, of forcing the tumour down towards the orifice. For this purpose it is necessary, of course, that the tumour should be so placed as to be capable of being thus acted upon. An interstitial growth would probably, and a sub-peritoneal growth would certainly, not be so affected: but, in the case of polypi, and of distinctly intra-uterine tumours, I have seen the uterus force them down not only to, but even beyond, the os uteri into the vagina, and thus greatly facilitate their removal. Moreover, the hæmostatic action of the ergot is often of signal service in the hæmorrhages and profuse discharges which so trouble the patient afflicted with these diseases.

The use of ergot of rye in pregnancy to prevent abortion, where it has occurred on many previous occasions, is, it need hardly be said, a matter of extreme delicacy, requiring a very careful discrimination of the cause of previous abortions, and of the actual present condition of the uterus.

When the first abortion is traceable to some mechanical effort, some act of exertion, and has been followed by repeated miscarriages, the patient being subject to menorrhagia and blenorrhœa, then we may reasonably suspect the existence of a weakened atonic condition of the uterus. Under these circumstances the ovum is retained so long as it is small and of no weight; but as soon as it increases much in size and becomes heavy, the uterus is unequal to the task of maintaining it, and, on any slight exertion, it is expelled with little or no pain, and with hardly any effort on the part of the uterus,

which is almost, if not quite, passive in the matter. In such cases the ergot of rye will be very beneficial; it gives power to the uterus, improves its tone, increases its strength, and enables it to perform its function in a proper manner.

To secure this result, the dose requires to be carefully regulated; it is in fact of more importance in this particular instance than in any of those I have previously considered. With these, a little more or less is at least not productive of any evil consequences, whereas, in the case of threatened abortion, any excess of the required dose will probably effect the very thing we are most anxious to avoid. It should be borne in mind, too, that the condition of the uterus which requires ergot for this purpose is one very impressionable to its influence; there being but very slight resisting power, it is the more easily affected. Hence it is advisable to begin with very small doses, five to eight minims of the *extractum ergotæ liquidum* of the B. P., gradually increasing it to twenty or thirty minims, and repeating the dose three times in the twenty-four hours. It should be commenced as soon as pregnancy is known to exist, and be continued as long as may seem necessary, certainly till after the period of the accustomed abortion, but with an occasional omission of a week or two.

Much more might be said on the therapeutical uses of the ergot of rye, did space permit; but these remarks are offered in a suggestive rather than in a dogmatic spirit, and in the hope that they may lead to further experiment, with the belief that great good will result therefrom.

ON SULPHUROUS ACID IN THE TREATMENT OF PYROSIS.

BY DR. LAWSON.

THE term pyrosis has been so variously and vaguely applied to abnormal conditions of the stomach, that it may be as well at the outset to state distinctly to what form of gastric disturbance I propose in this paper to apply it. Dr. Copland regards pyrosis as a special affection, which may be, without much difficulty, distinguished from other morbid states of the stomach, and which is especially related to indulgence in particular forms of diet. Dr. Handfield Jones, on the other hand, if my memory serves me, is disposed to regard it as at least a variety of chronic gastric catarrh. Without wishing in these pages to enter further into the matter, I may state that my belief lies much more in the latter than in the former opinion. But whatever be the pathological conditions of the phenomenon to which the term pyrosis has been applied, the phenomenon itself is familiar to every one, and it is the treatment of this unhealthy action of the stomach to which I would direct attention.¹ Whether the ejected fluid be saliva, as suggested by Brinton,² or a gastric juice abounding in acetic acid, as is asserted by Simon,³

¹ I by no means wish to infer that sulphurous acid will remove that condition of the blood which, by altering the nutrition of the mucous membrane, renders it a favourable nidus for fungi. On the contrary, I wish it to be understood that the sulphurous acid is to be employed solely to remove one phase of the gastric disease. I may, perhaps, be accused of treating a symptom, and I am ready to plead guilty in a qualified sense, at the same time expressing my belief that nothing short of restorative treatment can be productive of *permanent* benefit to the patient.

² On Diseases of the Stomach.

³ Animal Chemistry, vol. ii. p. 395.

is not a question to be discussed here. But it may be of interest to state that so far as my own examination of numerous specimens of the liquid have gone, they have always proved it to be strongly and decidedly acid. It is, however, certain that not only in the so-called characteristic pyrosis, but in gastric catarrh, ulcer, carcinoma, and those irritable conditions of the stomach associated with unhealthy menstruation, a thick, glairy, opalescent, semi-mucous, sour liquid is with greater or less frequency ejected. Not the less true is it that this condition is one which has hitherto been found very intractable, and which many physicians have regarded as wholly incurable.

Bismuth, kino, hydrocyanic acid, and the mineral acids have all been tried with, I must confess, very unsatisfactory results. I refer not only to the published records, but to my own individual experience. Creasote has, I believe, proved useful in the hands of Dr. Habershon and others; but I must say its effects have not satisfied me, for while I have no doubt of its antiseptic action, I have grave suspicions that in certain constitutions it materially and injuriously affects the process of digestion. Dr. (now Sir William) Jenner was, I believe, among the first to suggest the employment of the sulphites and the hyposulphites of the alkalies, and therapeutics is indebted to him for a very valuable mode of treatment. The sulphites unquestionably diminish, and even occasionally arrest, the secretion in water-brash; and they have been much lauded by many who have administered them. Still, I must say, that after a very fair and full trial of these salts, I have not found them as efficient as they are said to be. Why this is so I know not. One would be led to suppose that if sulphurous preparations are valuable in certain cases, the sulphites and hyposulphites ought to be among the best. I have not found it so, however. Given in doses of from grs. x. to grs. xxx. three times a day, I have rarely seen them effect more than a slight diminution of the acid secretion. May it not be that in many cases they are absorbed without undergoing decomposition, or that their decomposition proceeds so slowly that too small quantity of the sulphurous compounds is discharged in a given time, thus allowing absorption to take place before the necessary *local action* has occurred?

The very remarkable cures recorded by Dr. Dewar¹ and Mr. Pairman,² as having been effected by the use of pure sulphur vapour, led me to give sulphurous acid a trial in cases of pyrosis, and certainly the result surprised me. *In every instance in which it has been employed it has, in a very short time, completely arrested the water-brash secretion.* Indeed, it has given me so much confidence in its valuable action, that I now never hesitate to assure the patient he may very soon hope for relief from at least the distressing symptom of pyrosis. Dr. Dewar and Mr. Pairman have advocated the use of sulphurous acid to a degree that I should be far from accepting, and have been, in my opinion, over-zealous in urging its claims as a panacea. But for all this, I am disposed to think that its usefulness in conditions of pyrosis can hardly be overrated. It checks the excessive secretion, stops the vomiting, and lessens the epigastric dragging pain so often complained of.

What is the explanation of its action? This is a question which is especially interesting just now, but which it is impossible to answer definitively in the present state of science. Some would say its good effects are due to the production of ozone³ and the destruction of vegetable germs, and among these I desire provisionally to rank myself. Others would, perhaps, urge that it has some special action on the mucous membrane? It is a significant fact, first, that in all the specimens of water-brash immense quantities of vegetable organisms are present; and, secondly, that sulphurous acid is fatal to these structures. I have made numerous microscopic examinations of the fluid of pyrosis, and in nearly every instance⁴ I have detected not only sarcinæ (which Kühne⁵ holds to have no fermentative power on sugar) and torulæ, but huge clusters of leptothrix and myriads of vibriens, and bacteria.

Pasteur has shown the vast influence which these latter bodies

¹ On the Application of Sulphurous Acid, Liquid and Gaseous, to the Prevention, Limitation, and Cure of Diseases. By James Dewar, M.D. Edinburgh: Edmonston and Douglas, 1868. Eighth Edition.

² The Great Sulphur Cure, &c. By Robert Pairman, Surgeon. Eleventh Edition. Edinburgh: Edmonston and Douglas, 1868.

³ Dr. Lyon Playfair.

⁴ Amplifying power from 500 to 800 diameters.

⁵ Lehrbuch der Phys. Chem.

have in promoting certain fermentation, and it is only natural to suppose that the sulphurous acid, by destroying them, checks these unusual processes. That the clusters of leptothrix are productive of irritation (and hence possibly of undue secretion), must be evident from the manner in which they are buried and rooted in the very substance of the epithelium particles. Whatever, then, may be the relation of an unhealthy condition of the stomach to the first development of these vegetable forms in its walls, I am induced for the present to infer that their continual presence is productive of the excess and alteration of the gastric secretion, and that the reason why sulphurous acid is so beneficial, is simply that it is a parasiticide.

The doses in which I have given the acid (B. P.) vary from ℥xxx to ʒj three times a day, shortly before meals. Bitter infusions may be employed as a vehicle, but plain distilled water is best. I have seldom heard patients complain of any unpleasant effects of the medicine.

Reviews.

Beiträge zur Therapie der chronischen Metritis. Von Dr. J. COHNSTEIN. Berlin: Hirschwald. Gr. 8. pp. 100. London: Williams and Norgate, 1868.

(*Contributions to the Therapeutics of Chronic Metritis.* By Dr. J. COHNSTEIN.)

THIS is one of those solid pieces of research, at once learned and practical, which impress the reader with respect, independently of any reputation that may attach to the author's name. Although quite a moderately-sized pamphlet, it contains a vast quantity of information on its subject; and this information is so judiciously arranged and concentrated that we have at a glance the opinion of nearly every writer worth naming, and the author's own comment. All English practitioners who read German should get the book, and it seems a pity that some one should not translate it for the benefit of those who do not.

Dr. Cohnstein prefaces the practical part of his work with an introduction, in which he discusses the clinical history of our pathology of chronic metritis, as at present understood. The new classic work of Scanzoni first placed the pathology of the affections grouped under this name on a satisfactory basis, and was the first solid bulwark against the flood of wild empiricism which set in in the wake of the furore about inflammation and ulceration of the cervix uteri. The pathological position of Scanzoni (which we may remark, by the way, is identical with that arrived at, to a large extent independently, by Dr. Graily Hewitt) forms the basis of a systematic attempt by Cohnstein to form a rational system of therapeutics. The latter is that which specially concerns us in this journal.

The therapeutic portion of the book is divided into eight chapters. The first is concerned with prophylactic measures; and as chronic metritis is intimately connected with imperfect involution of the uterus, a mischief very easily helped by external influences, this subject is of great importance. Cohnstein's rules as to cleanliness are of course the same as those of all good authorities. As to the enforcement of rest in a fixed

position for a certain number of days after confinement, which has been much insisted on by some, he takes the common-sense view that the individuality of the patient is a more important matter than any rigid rule; and he is equally incredulous as to the value of set times for the use of catheter and clyster. He also throws discredit upon the absolute diagnostic value of various modifications of the lochial discharge, and approves Winckel's remark, that it is impossible rightly to estimate the value of these alterations except by a careful appreciation of the balance existing between the uterine secretion and that of the skin and kidneys. On the question of *purgation*, as a "critical" evacuation to replace abnormally deficient lochia, he does not pronounce himself distinctly, though seeming to lean to non-interference. One of the most important objects, in a prophylactic point of view, is the promotion of the symmetric contraction of the uterus after labour, and to this end Cohnstein seems chiefly to recommend the employment of friction of the uterus through the abdominal wall. We are surprised that he passes over with a depreciating remark the employment of the binder, which has been assigned a considerable importance by Graily Hewitt, and justly, as we think. On the other hand, he approves the administration of a diffusible stimulant (champagne when obtainable), and deprecates the routine English custom of administering an opiate against after-pains. We think that this latter objection is a good deal too theoretical. Like the analogous argument against the employment of chloroform in (so-called) natural labour, it proceeds on the supposition that the action of the opiate must needs be paralysing to uterine contraction; but, on the contrary, we maintain, in the one case as in the other, that with the use of sufficiently small doses, *narcotic* effects are almost entirely avoided, and a stimulation is produced which brings about *synergic contraction* of the uterine fibres, which is painless.

In the second chapter, internal remedies are discussed, and we shall only recommend the reader to notice the judicious remarks as to the real nature of the undoubtedly successful action which such remedies as aloes and rhubarb occasionally exert. The next chapter discusses the important subject of the influence of pregnancy and of sexual connexion upon an existing metritis. His remarks on these points appear to us particularly judicious, especially as regards the enormous exaggeration of ideas which has led to wholesale interdiction of sexual intercourse to the large class of women who are sufferers from chronic metritis; and the monstrously exaggerated ideas about onanism, nymphomania, and the like—a terrorism which, as he remarks, is "noch nicht vorüber." Chapter IV. contains a brief summary of the question of local blood-

letting, of which he is a very moderate advocate. In the next chapter he discusses the influence of sitz-baths, vaginal injections, douches, and compression; amongst other things, it is refreshing to observe the healthy scepticism with which Cohnstein treats the whole armamentarium of specula, &c., which have been invented with the intention of rendering the practice of vaginal injection somewhat more directly curative than it usually proves to be. It is odd, as he justly remarks, that notwithstanding their wild terror of female self-abuse, the accoucheurs should be so ready to put the implements of that evil practice into their patients' hands.

We must pass over the two next chapters, which deal with the use of pessaries, the employment of various derivative measures, and certain operative procedures, in order to make a few remarks on the eighth and last chapters, which deal with medication of the cavity of the uterus. The question of the danger or safety of *intra-uterine injections* is becoming a very important one; and either we are mistaken, or there are great differences of opinion about it among practitioners in this country. The accidents which have undoubtedly been produced in certain cases were serious, and even frightful, and they are fully and carefully summed up by Cohnstein. Above all things, the danger to be dreaded is an escape of injected fluids through the Fallopian tubes into the cavity of the peritoneum; but upon this, and upon other elements of danger, we think that the arguments of the author are satisfactory. In the first place, he brings together an array of evidence, which we fancy will be a surprise to most, as showing the great antiquity and the wide diffusion of the practice of intra-uterine injection. But he also shows, by careful analysis of observations made by himself and others, both on the living and the dead subject, what are the necessary precautions to be observed. He gives a series of directions as to the mode and instruments of injection, which render it impossible that the dreadful accident of escape through the Fallopian tubes can occur, and greatly diminish the chances of the less formidable accidents, such as syncope, uterine colic, and labour-like pains.

On the whole, we may say that it is seldom one reads so very full, compendious, and practical a monograph as that which we have now had the pleasure to introduce to our readers.

Beiträge zur Kinderheilkunde. Von Professor Dr. E. HENOCH. Neue Folge. Berlin: Hirschwald, 1868. Gr. 8. pp. 422.
(*Contributions to Pædiatria.* By Professor HENOCH. New Series. Berlin, 1868.)

THE diseases of children have recently received an amount of serious attention on the Continent which very much surpasses

that which has been given to them in this country, although we were glad to notice, in our last number, the work of Dr. Hillier, which looks like the beginning of better things. Indeed, it is rather singular, considering the large number of men who have been trained in this department by able teachers like Dr. West, Sir W. Jenner, and others, that we are still only expecting, in England, the appearance of any works approaching in value such a treatise, for instance, as Ziemssen's splendid monograph on the chest-inflammations of children. However, all Germans are not equal.

Professor Henoeh is the director of a polyclinic for children at Berlin, and his present volume represents the experience gained from 4,500 cases treated (in the course of about seven years) in hospital, and a considerable amount of private and consulting practice besides. We cannot say that his book at all comes up to the standard of good German work, or that it satisfies us in any way. It is enough to make one mistrustful when, on casually opening the book for the first time, one's eye drops on the heading "*Scarlatina*," and further discovers that this fever is reckoned among "*Diseases of the Skin*!" The article itself strikes us as very meagre (*e. g.*, there is not a word about thermometric observation), and, in a therapeutic point of view, there is little to encourage one to take counsel with Professor Henoeh, for we observe that he uses mercurial inunctions for intercurrent head affections in scarlatina.

It must, however, be said that there is the greatest inequality in the book. The article on acute nephritis, for instance, is much better, though why in the world it was not dealt with under the head of *Scarlatina* it is impossible to say. Henoeh's treatment of this complaint, of which he sees a great many cases of course, may interest our readers:—"In cases where there is no or but little fever, and no complication, I merely keep them quiet in bed, give bland food, and small doses of acetate of potash, a mild diuretic, which tends to wash the cell elements out of the urinary tubules. *Lukewarm baths* (afterwards wrapping the patients in a woollen gown) are also to be much recommended, as they cause a powerful derivation to the skin. So far, I have only used the bath in cases where there either never has been pyrexia, or it has quite disappeared; but I cannot say whether they would or would not be useful in cases attended with fever, and scanty, bloody urine. I consider them contra-indicated by any serious chest complications, attended with severe dyspnoea. Where the temperature rises notably, and the urine is very scanty and bloody, I give purgatives for a couple of days, and then a combination of acetate of potash and infusion of digitalis; if there be constipation, I give calomel and digitalis and cream of tartar. Under the same circumstances I have also seen local blood-

letting from the loins produce a rapid effect, and I think this indicated even where there is no marked local tenderness. In unhealthy cachectic children dry cupping may be used. In general, however, there is no need for hesitation, and especially we ought not to let dropsy frighten us from blood-letting. . . . If all other means fail, a venesection of from 2 to 4 ounces often quickly induces increased secretion of urine and diminution of fever. It especially suits the cases which are implicated in the inflammatory affections of the serous membranes and of the lungs, and in which uræmia impends. If the urinary secretion increases, but remains bloody, quinine is to be recommended, or, still better, tannin (in grain doses, three or four times daily), as a contractor of capillaries." It is astonishing that in all this description of treatment, the two most important items, as English physicians think, are left out; viz., the use of the hot-air bath, the greatest sudorific possible, and of copious draughts of water, much the best diuretic we possess in scarlatinal kidney affection.

Altogether this is that sort of large dull book which is *not* very specially to be recommended. For once we feel inclined to let our readers enjoy and indulge their natural but culpable hatred of thick books in a difficult language, which too often leads them to neglect matters of the highest interest that come to them in this sort of unattractive guise.

Lehrbuch der speciellen Pathologie und Therapie, &c. Von Dr. FELIX VON NIEMEYER. 7te. vielfach vermehrte und verbesserte Auflage. Erster Band. Berlin: Hirschwald, 1868. Gr. 8, pp. 840.

(*Compendium of Special Pathology and Therapeutics.* By Dr. F. VON NIEMEYER. Seventh edition. Vol. i.)

WE have no intention of reviewing this large volume, in the ordinary sense of the word, nor does it lie in our province to do so: but there are certain plans of treatment recommended for particular diseases by this great German authority, that we think are too little known and studied in England, and we shall call attention to a few of these.

One of the things which has struck us most in studying continental therapeutics of late years, is the freedom with which the influence of external *cold*, either by baths or by other cold applications, is used in the treatment of pyrexial diseases. In the hands of many physicians we are convinced that it is pushed to a useless and dangerous extreme, in a vain hope, which cannot be realized, of putting a sudden end to the cases which, in reality, have a certain course to run, and cannot by any means be suddenly stopped. Von Niemeyer does not share these

extravagances ; on the contrary, he is every way moderate and eclectic in his principles of treatment ; what he says on this matter is therefore particularly noteworthy. "I have made extensive use," says he, "of the application of cold in pneumonia, and can recommend it on the ground of a large number of very favourable results. In all cases I cause the chest of the patient (side affected) to be swathed in napkins dipped in cold water and wrung out ; these are renewed every five minutes. Unpleasant as the process is in itself, almost all the patients assure me, in a few hours that they feel themselves decidedly relieved : the pain, the dyspnœa, and often the pulse-frequency are moderated ; occasionally the temperature sinks a whole degree (Réaumur). This frequently striking amendment is not rarely maintained during the whole course of the disease, so that the external symptoms would scarcely betray the existence of a serious disease. The friends of the patient, also, who do not fail to notice the relief afforded, in the end are usually glad to submit to a plan of treatment which at first they resisted. In some, but a very few, cases, the application of cold produces no relief, and then the wearisomeness of the treatment so increases the patient's misery, that he refuses to continue it. In such case I do not insist on going on with it. I should describe cold only as a *palliative* in pneumonia, since I have never known it arrest the disease, were it not that in many instances the energetic and persevering use of this treatment has undoubtedly shortened the pyrexial stage, and made the convalescence more rapid. In fact I have only seen a very few cases which were as late in beginning to resolve as the seventh day ; in many it occurred on the fifth, and in an usually large proportion on the third day. I have repeatedly found it unnecessary to keep patients with recent pneumonia more than eight days in hospital. Cold is justly reckoned as one of the most powerful antiphlogistic agents in inflammations of external organs ; it directly contracts the relaxed tissues and the dilated capillaries. It is not so easy to understand its operation in inflammations of parts which are covered by skin, muscles, and bones ; yet the contractions of the uterus and of the intestines on the application of cold to the belly, prove the possibility of an action on the deep parts ; and for a long time the application of ice to the head in meningitis and Kinisch cold compresses in peritonitis have been justly esteemed. I possess no experience of the effect of repeated *cold swathing of the whole body* in pneumonia, such as the hydropathists often employ, but it may be assumed that, although without any greater direct influence on the local disease, it lowers the temperature and reduces the fever temporarily. In infectious diseases, at least, I have very often verified this influence of energetic cold treatment upon the elevated temperature."

"All other remedies and methods of cure recommended for pneumonia, are powerless for *direct* influence on the disease; they can only be regarded (like bleeding, for example) as remedies for special symptoms."

Niemeyer speaks with like confidence of the effects of treatment by cold in pleurisy and in pericarditis; and it certainly seems strange that a mode of treatment which enjoys so much distinguished favour abroad should not have received a fairer trial in England.

Another matter also, which is a marked feature in continental practice, is the use of digitalis as an antipyretic in acute disease. It is, of course, not unknown in this relation in England; but we certainly see nothing like the free and confident use of it which prevails, especially in Germany. Here, again, it is interesting to take the not too enthusiastic evidence of Niemeyer.

In *pneumonia*, for example, when the pulse ranges from 100 to 120, he employs digitalis (an infusion made with a scruple to 5vj water) in combination with nitrates of potash and soda; he says it reduces the fever, but does not alter the plastic processes.

In *pericarditis* he recommends digitalis strongly in those cases in which the heart's action is very rapid and feeble, and these are cyanotic and dropsical symptoms. In cases of recent pleurisy, with high fever, he gives it in infusion (gr. x ad 5j); in more chronic and less febrile cases he gives the powder, in one-grain doses, with equal parts of quinine.

A third remedy, which also is given in Germany with a degree of freedom, which, so far as we are aware, would both surprise and shock the majority of English practitioners, is *veratrum viride* and the alkaloid *veratrine*. Introduced into favour (in Germany) chiefly by Biermer and Vogt, it is recognised by Niemeyer as "a very powerful antipyretic." The doses which the latter authority recommends in pneumonia are $\frac{1}{20}$ grain of veratrine, or $\frac{1}{6}$ grain of resin of veratrum, every hour. These seem to us to be very large doses; they are certainly much larger than those employed by Kiemann in the experiments recorded in the last number of this journal; and if, as we fancy, they are imitated from Biermer, we cannot wonder that *collapse* was—as we know it was—a frequent symptom within Biermer's experience. We hope on an early occasion to give a summary view of the whole subject of veratrum and veratrine action (which, there is reason to think, differ in some notable respects); meantime we wish that English practitioners would make cautious experiments with small doses,—at least with the *tincture of green veratrum*. If the tincture of our Pharmacopœia be employed, we would urgently recommend that much smaller doses should be given than those recommended in our Pharmacopœia,—*e.g.* two minims every hour.

One feature in Niemeyer's treatment of acute diseases is worthy of special remark; the contrast between the great favour he shows to local blood-letting and the very restricted limits within which alone he sanctions phlebotomy. He is particularly strenuous in his recommendation of early and sufficient leeching or cupping in recent pleurisy, attended with *sharp pain and high fever*. It is very curious to note here the influence on his mind of certain physiological theories, which have plainly warped his faculty of observation. In the first place, as a matter of fact, the stage of sharp pain in pleurisy is not one of high fever, but of small, thready, and contracted pulse; and (usually) pinched features. But the same physiological bias which leads Niemeyer to believe in a theoretic dilatation of the internal carotid artery as a cause for facial neuralgia, also leads him inevitably to the idea that sharp pleural pain must needs imply intense pleural congestion, and so the leeching follows as a matter of course. We are not denying that relief of pleuritic pain is not sometimes obtained by local blood-letting in cases where extraordinary congestion leads to pain *from mechanical distension*. But we are willing to stake any reasonable venture on the affirmation that there is *nothing* which local blood-letting can do for pleuritic pain which we cannot produce with double ease and effect by subcutaneous injection of morphia; and that, in the immense majority of cases, the leeching or cupping simply bothers and depresses the patient without producing the least benefit.

The above are a few of the peculiarities which make Niemeyer's book worth studying by Englishmen who have not seen continental practice. We might add, that upon one other every-day medical topic he speaks with a decision which ought not to be without its influence in confirming modern English views, and putting a final stop to the timid conservatism of the older school. We refer to his opinion on the subject of mercury in acute inflammations, especially of the heart. No one could speak with stronger condemnation of the useless folly of the attempt to subdue inflammation, or remove exudations in the pericardium or endocardium by means of the specific action of mercury, than Niemeyer. We trust that the time is rapidly approaching when such a statement as we read just now in a (still) standard English work which we took down from our shelves, that no acute case of pericarditis could be safely treated without bleeding and mercury to salivation (!), will suffice to insure a physician's being ostracised by every general practitioner in the kingdom.

Clinic of the Month.

A ready Means of applying Chloride of Zinc in Cancer.—

Mr. Weeden Cooke sends us an account of a process he has devised for this purpose, and which he finds most useful. Following a plan adopted in some hospitals, of steeping lint in solution of sulphate of copper and liq. ferr. perchlor., and afterwards drying it, he has been substituting chloride of zinc for these substances, and finds this preparation most convenient for application. "The chloride of zinc, being a highly deliquescent salt, requires scarcely more than exposure to the air to render it liquid; at least a very few drops of water will quickly produce this effect. The lint is thoroughly soaked with this liquid, and hung up for a short time. It does not dry so completely as the iron or blue lint, owing to the deliquescence of the zinc. It preserves its active properties for weeks, if kept in a wooden or pasteboard box, such as a seidlitz powder box. An old pair of scissors should be kept for cutting it, and forceps coated with vulcanite may be employed in its application or removal. The great convenience of the chloride of zinc lint is that the smallest pieces may be used, even to a wart or pimple, or to parts, such as the eyelids, to which it would be almost impossible to apply the old paste. There is also the advantage of confining the caustic effect absolutely to the part to be attacked. I have used it to those stubborn indurated ulcers at the inner canthus, be they lupus, rodent ulcer, rodent cancer, or what not, as well as to the upper and lower lip, and other parts of the face, with the greatest advantage; and have obtained better results than formerly, because of the power of adapting the application exactly to the size of the eschar required, and the ease of keeping the lint on as long as need be, and re-applying it as often as may be necessary with very little discomfort to the patient. It being always ready, the surgeon in going round his wards may himself apply this lint to a commencing slough, either in a cancerous breast, or an ulcerated leg, or a bed-sore, or a phagedæna, and at once check that which otherwise may give much trouble to stay. I had occasion to enucleate a large epithelioma, from the parts about the umbilicus, which dipped down so deeply as to render it probable that it had reached the inner wall of the abdomen. An eminent surgeon advised removal by the

knife, but the patient objected, and I set to work with some trepidation to remove it by means of the chloride of zinc. There being a large surface to destroy, I used at first the paste, taking away every other day the dead portions; some little bleeding occurred when these were removed, but by means of the iron lint it was readily checked. It was not possible by any amount of packing round the diseased part to prevent very troublesome excoriation of the healthy parts, and so, at the latter part of the treatment, it occurred to me to use the lint as I have above described. It answered perfectly, and the whole of the cancerous mass was removed, leaving a red healthy granulating surface, which soon healed by the application of resin cerate. In a very curious case, which seemed to combine the appearances of keloid and encephaloma, I have recently been able to discharge from the hospital to resume her usual occupation, after a twelve months' residence there, a patient upon whom I had twice operated by means of the *écraseur* for large growths of a soft spongy character, having an extended horny base. These soft excrescences reappeared, and I finally attacked them with the zinc lint so successfully, that for a time at least there seems a prospect of immunity. For uterine purposes also, this convenient method of using chloride of zinc is much to be commended. Passed up through the speculum to the diseased part, and covered by a further plug of dry lint, it does its work, if properly measured for the part to be destroyed, without injury to the healthy tissues."

Treatment of Consumption.—Dr. C. J. B. Williams has contributed to the *Lancet* a very valuable series of papers on the treatment of consumption, in which he discusses the various remedies, used from time to time in the history of the disease. In former years, he says, the antiphlogistic, or starving plan, was carried too far; but he thinks that now the opposite method is also occasionally adopted to too great an extent. He admits that of the two extremes the tonic one is the better. But in case of active inflammation, continual heat of skin, hard racking cough (dry or with viscid and tinged expectoration), much pain or soreness of the chest or side, it answers well to withhold or withdraw the stronger stimulants and tonics, and for a time, it may be a few days only, to substitute cooling and soothing remedies, with moist epithems or counter-irritants on the chest, and more rarely local depletion. But this discipline, which is exceptional, should be as soon as possible replaced by the regular treatment of cod-liver oil and tonics, and a more generous diet. He administers the oil in aromatic bitters, and in cases of weakness of stomach he adds strychnia ($\frac{1}{32}$ of a grain) or salicine. A tea-spoonful three times a day he con-

siders quite sufficient, a larger quantity passing away by the bowels, or irritating and deranging the stomach. Glycerine by itself he thinks valueless, but given with cod-liver oil, nitric acid, and iodide of potassium it is useful. As to the hypophosphites, he says that they are no substitute for the oil; patients, when placed under their influence, losing both flesh and appetite; but he has found them of service in combination with the oil. His experience as to the use of sulphurous acid, a substance so highly lauded by Dr. Dewar, is too limited to admit of any expression of opinion. He is disposed to rank inhalation as a very subordinate remedy in the treatment of consumption. He has no great faith in the continental "waters," and his opinion of the German water-cures, whey-cures, and grape-cures is, that they are of little value. Of far more importance in the treatment of consumption is the influence of change of air and climate, but for details on this point he refers to his son's work on this subject. (See *Lancet*, August 15.)

Nævi in Children treated by Actual Cautery.—Mr. T. Holmes has recently had two cases illustrating the advantage of this mode of operation. The cautery employed was that known as Wordsworth's, which consists of a steel needle springing from a bulb; the latter being brought to a white heat in a blow-pipe flame, it keeps the needle heated for a considerable time. The cutaneous part had been previously treated by nitric acid, and the subcutaneous had been partly removed by the ligature. The cautery was, therefore, employed to destroy a few remaining portions of the nævus tissue. The nævus was pierced in ten or twelve places, the needle remaining hot the while. The result was most satisfactory; there was no irritation nor suppuration. (*Ibid.*)

Relief of Pain in Open Cancer.—It would appear from the hospital report of the *Lancet*, that at the Middlesex Hospital the pain of open cancer is found to be much relieved by the application of an ointment of which the following is the formula:—Take half a pound of fresh stramonium leaves and two pounds of lard. Mix the bruised leaves with the lard, and expose to a mild heat till the leaves become friable, then strain through lint. The ointment thus prepared is spread upon lint, and the dressing changed three times a day.

Chloride of Ammonium and Tincture of Aconite in Ovarian Neuralgia.—Dr. J. Waring-Curran states that these preparations have a magical influence in the treatment of ovarian neuralgia. He reports two or three cases in which various sedatives and anodynes had been tried in vain. He prescribed an eight-ounce mixture, containing two drachms of muriate of

ammonia, with five-drop doses of tincture of aconite, and found that before the mixture was finished by the patient the pains had entirely ceased. (See *Medical Press and Circular*, Aug. 19.)

Bromine in Spreading Ulcer.—In the Royal Infirmary of Manchester Mr. Southam recently had a case which demonstrated the beneficial action of bromine in spreading ulcer. The patient, a man aged sixty-five, had an enormous rodent ulcer in his left cheek, which was rapidly spreading. Zinc paste was employed, and it arrested the phagedænic action, and the old man left the hospital, only, however, to return in a worse condition than before. Bromine in proportion of a scruple to the ounce of spirit was then applied; but the patient could not tolerate the pain it caused. A weaker solution was then employed, and the ulcer was much improved; but he complained still of the pain induced by the bromine, and left the hospital before the cure was effected. (See *Medical Times and Gazette*, July 25.)

Removal of Foreign Bodies from the External Auditory Meatus.—Mr. A. Gardiner Brown proposes two simple methods of extracting foreign bodies from the meatus. When the substance is not tightly packed, he urges the employment of atmospheric pressure in the following manner:—A few inches of vulcanised India-rubber tubing of a size to fit the meatus easily, but not loosely, is cut at one end with a pair of sharp scissors in such a manner as to make it fit the visible surface of the foreign body somewhat neatly, when pushed gently against it in the meatus. A vacuum is now produced by means of an ear-syringe attached to the tube, and the “body” being thus seized hold of may be easily withdrawn. When the body is spherical, it may often be removed by a “rolling out plan” as follows:—Select a curved suture needle, with a broad but thin point, and rub the extremity on a steel surface so as to allow the finger, when passed along its concave surface, to feel a slight “burr” or turning over of the point. This instrument should always be passed at that point of the circumference which presses least on the meatus, this being generally either above or below when the form is spherical. This “rolling out” process requires the needle to be inserted some five or six times over the object, especially when this is deeply seated. (*Ibid.* Aug. 8.)

The Treatment of Tongue-tie.—Mr. C. F. Maunder's method of operating is to tear or lacerate the membrane with the fore-finger. The finger is introduced into the mouth to ascertain the existence of the deformity. When this latter is recognised, pressure with the finger is directed downwards and backwards towards the floor of the mouth (the finger nail resting on the frenum); the frenum is torn and the object is effected.

The advantages of this method Mr. Maunder considers to be that it obviates the use of instruments, and is "highly acceptable to mothers." (See *Lancet*, August 15.)

Calomel Vapour-baths in Syphilitic Albuminuria.—In Mr. Henry Lee's excellent paper on this mode of treating a special form of syphilitic disorder, a good many useful hints are given, some of which we will extract for our readers. Mr. Lee thinks that the great advantage of the calomel bath is that by its use you obtain the influence of mercury without irritating the internal organs, or giving rise to salivation. He declines to go into the question whether calomel, as such, enters the skin; but he is fully convinced that the calomel bath, when properly administered, produces all the therapeutic effects which can be produced by the administration of mercury, either internally or by inunction, and that it does so without impairing the power of the constitution in anything like the same degree. He has not found the inhalation of calomel vapour at all satisfactory. The mode of treatment by baths was first introduced into the Southern States of America, by Dr. D. W. Yandell, where it is now much employed. But the quantities used by Dr. Yandell are much larger than Mr. Lee approves of. The degree of perspiration is very much influenced by the amount of water used in the bath; the water acts as a carrier of heat. An amount of heat becomes latent as the water boils, and is given out again as the vapour condenses in the patient's body. It not only softens and warms the body, but it prevents the muriatic acid, which the calomel gives off when heated, from irritating the lungs. If the vapour be in excess, it impedes the action of the mercury. (*Ibid.*, July 25.)

The Treatment of Uterine Displacement.—In an excellent communication on uterine displacements, Dr. Alfred Meadows expresses the general opinion that obstetricians have leant, in their modes of treatment, a little too much to surgery. Of course, he admits the necessity for mechanical methods of healing these displacements, but he shows also that a great deal can be effected by the judicious administration of drugs. The remedies which have proved most successful in his hands, and to which he therefore attaches the greatest importance, are: leeches to the uterus, the vaginal douche, sedative and mildly astringent vaginal injections, sedative vaginal pessaries, or—what are cleaner and more pleasant in use—pledgets of cotton-wool, as first suggested by Dr. Greenhalgh, containing definite proportions of some sedative, such as morphine or atropine; local galvanism to the uterus,—a very efficient remedy in cases of chronic sub-acute enlargement,—and among drugs, the iodide and bromide of potassium, the iodide of iron, strychnine, ergot,

cinnamon, and occasionally in very chronic cases, where there is a flabby atonic condition, some of the astringent preparations of iron, of which the peracetate is, in Dr. Meadow's opinion, the best. When he has, by means of these preparations, induced a healthier condition of the parts, he then (but not before) resorts to mechanical means to replace the uterus in its normal position. (See *Lancet*, July 25.)

The Treatment of Sunstroke.—Dr. W. C. Maclean, than whom there is no higher authority on sunstroke, gives the following advice to those who have to deal with this affection. The best and safest mode of treating a person struck down by heat is at once to remove him to the nearest shade, to strip him and assiduously to douche him with cold water, over head, neck, and chest. By this means a powerful impression is made on the cutaneous nerves, the effect of which is to set suspended respiration in motion, at first by catches and gasps, and finally in a more regular manner. If the heat of skin be, as it usually is, high, this simple operation should be repeated again and again. The patient should be made to drink freely of ice-cold water, if that be at hand; if vomiting results, so much the better, for it will mechanically aid in diminishing extreme congestion of the lungs, which is one of the most invariable consequences of the attack. The patient should be made to inhale ammonia with the usual precautions from time to time. As soon as sensibility is restored it is well to give a purgative; moderate diarrhoea favours recovery. If sensibility be not restored by the above means, shave the head and apply a blister. In the convulsive form of the disease chloroform may be inhaled, as advised by Dr. Barclay, but always under medical supervision. (*Ibid.*, Aug. 1.)

Extracts from British and Foreign Journals.

The Physiological Action of Meat Soup.—A paper on this subject has been written by Dr. Kemmerich. His researches have been undertaken with a view to discover the particular elements of flesh which act upon the nervous system, and to settle the nature of that action. Injecting a concentrated cold extract of lean horseflesh into the stomachs of dogs, Kemmerich arrived (1) at the conclusion, that in the smaller doses this preparation increases the number and strength of the heart's contractions, but that in larger doses *it acts as a poison*, and kills with all the appearances of *cardiac paralysis*. In cases where the dose is very large and concentrated, death is extremely rapid, and the arrest of the heart's action is accompanied with convulsions. (2) The second conclusion arrived at is, that the active principle in meat soup, which, in smaller doses, acts as an excitant, and in larger doses as a poisonous agent, is to be found chiefly in *the potash salts*. Kemmerich took the exact quantity of flesh extract necessary to produce poisonous symptoms, and reduced it to a mere *hash*; the solution of this hash produced almost exactly the same poisonous symptoms as the large doses of flesh extract produced. It is well known, however, from the most recent analysis, that the salts of flesh are made up to the extent of more than ninety per cent. of potash salts; and it need not be mentioned that potash salts are distinctly depressive to the heart. (3) The third conclusion, however, is, that the smaller and medium doses of potash salts are not able to produce the poisonous effects. On the contrary, from direct experiments, by injection under the skin, and by gastric administration of chlorate and sulphate of potash, both in dogs and man, Kemmerich determines that these lesser doses are excitant of the heart's action. Kemmerich points out that the opposite results obtained by Traube may be explained by the fact, that (owing to his injecting into the external jugular vein) he threw into the coronary circulation a comparatively large and undiluted quantity of potash, which could scarcely be other than paralyzing to the muscular tissues. Kemmerich refers to the conclusions of Nobiling, on the heart-paralysing action of the potash element of tartar emetic, when the latter is given in any considerable doses (*vide* PRACTITIONER, August,

p. 130), and considers these to be in accordance with the opinions he has formed.

[It is needless to say that if the above researches, which appear in No. I. of Pflüger's new and valuable *Archiv für die gesammte Physiologie*, be confirmed by subsequent observations of others, the importance of the facts they reveal is great. Such preparations as Liebig's, and other forms of concentrated meat juice, which are undoubtedly of frequent and very great service in rousing a prostrate nervous system, would no longer be able to be regarded as indifferent agents, which it was impossible to give in such excess as to produce seriously bad effects.—EDS. PRACTITIONER.]

Chorea cured by Galvanism.—Dr. Giovanni Finco relates a curious case of choreic movements, which came on in the course of a severe neuralgia, that affected the left side of the neck and the region of the heart, insomuch that the choreic movements might be said to be only a part of the neuralgic state. It was cured by the application of the galvanic current from the "crown of cups," as modified by Professor Dalnègro: the positive pole (a cylinder of brass) was applied to the palm, sometimes of the right, and sometimes of the left hand; the negative, which was metal disc, the size of a five-lire piece, was put, now on the nape, now on the shoulder, now above or below the breast, but always on the painful side: the conductors were covered with moistened linen, so as to cause as little resistance, and consequently as little pain to the hypersensitive surfaces, as possible. The *séances* were daily, and were continued for half an hour at a time; and by these means, in about two months and a half, the disease was nearly cured. It now appeared that electricity had done all that it could; and the cure was completed by small doses of extract of nux vomica, continued daily, for a short time, till about two and a half grammes (about forty-seven grains) had been taken in all. A few frictions to the spine with ice (for three minutes at a time) were also employed. But the cure was substantially the result only of the electric treatment. (*Gaz. Med. Ital. Lombard.* 25 *Luglio*.)

Cure of Melancholia by the Induced Current.—Schivardi relates the case of a girl who had always been cheerful till she was married, but shortly afterwards began to develop the symptoms of genuine and "exquisite" melancholia, which in two months had become complete. Other remedies having failed, she was treated with the induced current, the breaks being varied in frequency; the conductors were of brass, and dry, and were held in either hand. The *séances* were every other day, and lasted about ten minutes. In a few days she showed signs

of general improvement, and energetic sensibility to the current. Eight sittings completed the cure, which remained permanent. (*Ibid*, No. 21.)

The Physiological Action of Bromide of Potassium.—

This subject has been treated experimentally, with great care, by Dr. J. H. Bill, director of the United States Army Laboratory, Philadelphia. Dr. Bill commenced the investigation in consequence of the perplexing results which he obtained in treating boys with bromide, for onanism. He found that the local sensibility of the urethra was diminished, but the sexual excitement was not allayed; no one was cured, though some little temporary benefit had accrued. The author had further and very large opportunities of discovering that bromide did possess a local anæsthetic power over the mucous membranes of the genital organs, as over that of the pharynx; but he had failed to obtain any of the remarkable hypnotic effects which have been loudly proclaimed from every quarter. Dr. Bill determined to investigate the whole question of its physiological action; and the following results were obtained by researches which were continued over a great length of time, with suitable intervals, and were all made on the same person. The quantity of urinary water was always increased, but no thirst was occasioned, even by the largest doses. The acidity was usually increased; the colouring matters were invariably increased. The phosphoric acid varied; it was *increased* by *small* doses. The chlorides were always and notably increased, except when the bromide was acting as a poison; the increase was of chloride of *potassium*. Bromides, even after poisonous doses, were hardly detectable in the urine, but they were always found in the lung water and the pharyngeal mucus, and in marked quantity in the fæces. The uric acid was increased by bromides, both of potassium and sodium; but most by the former. The expired carbonic acid was notably decreased; on the days when the bromide was omitted, the excretion rose above the normal level. The fæces were diminished in weight, and their discharge usually retarded. The author compares these results with some comparative experiments made with acknowledged hypnotics—morphia, Indian hemp, and narceine,—and finds an entire disagreement with these chemico-physiological effects. He remarks that the bromine of the bromide appears to substitute the chlorine of the normal chloride of sodium in the body, and that it may do this for a long time without producing any marked phenomena. He does not believe that the salt owes its power either to the bromine or the potash, but to its constitution *as a salt*. He remarks that healthy persons are not thrown into sleep by the bromide, as they would be by morphia, and he infers that its

hypnotic action is only indirect; that over and above the chemical relations which it holds with the natural salts of the body it has some vital (!) influence upon the peripheral nerves which enables it to diminish irritability, and thus *allow* sleep. (*Amer. Journ. Medical Science*, July.)

Bromide of Potassium in Vomiting of Pregnancy.—Two American authors, Dr. Packard and Dr. Hickson, bear independent testimony to the power of this drug to check the reflex vomiting of pregnancy. It should be given in fifteen or twenty grain doses every two or three hours, till the effect is produced. (*Ibid.*)

Carbolic Acid as a Remedy for Flatulence and Foul Breath with Constipation.—Dr. Kempster of Utica, New York, speaks highly of this among other effects of carbolic acid. One or two drachms of a solution made with a grain of pure acid to the ounce, appears very quickly to sweeten the breath, and also to relieve the dyspeptic symptoms. (*Ibid.*)

Treatment of Typhus.—Dr. Julius Theurkauf, of Lehart, near Brunswick, who has recently observed typhus on the large scale, thus concludes a series of papers:—Good ventilation is of the first importance in treatment. The treatment must be expectant symptomatic. The method of cutting short the disease or modifying its further course by emetics or large doses of calomel has broken down. Warm baths, small doses of calomel, and opiates have proved especially useful in symptomatic complications. (*Virchow's Archiv*, iii. 3, 1868.)

Typhoid Fever and its Treatment at Basle.—This old-fashioned Swiss town, which is extremely ill-drained, or rather not drained at all, has probably been always a favourite seat of typhoid. Since the summer of 1865 a continuous epidemic manifestation of typhoid has harassed the inhabitants and the medical men; and Dr. Liebermeister now announces that the outbreak appears to be subsiding, and sums up the general results of treatment as observed in the hospital. Between August 1865 and the 31st December, 1867, 1,178 cases were treated, of which 168 died, or 13·8 per cent. This standard of mortality—which (with all proper deductions) is much more favourable than that prevailing in the epidemics of earlier years at the same hospital—is so much the more encouraging that it occurred in spite of the most unfortunate coincidences—from unavoidable overcrowding, &c.—which had been absent on former occasions. The cases in the late epidemic may be divided into two chief groups. The first contained 839 cases, which were treated with a *cautious* application of the cool bath

(once, or sometimes oftener, per day), and a mortality of 130, or 15.5 per cent. occurred; the second group contained 339 patients, to whom the cool bath was applied much more frequently—sometimes every two hours—or, in fact, as often as the temperature rose to 102° F., or higher; here there was a mortality of 33, or 9.7 per cent. The effect of quinine treatment was tried, not in the isolated large doses which, it is known, will at least strikingly reduce the temperature, but in small doses *continued*; no decidedly good results occurred, and the lowering of temperature was only very slight. Digitalis, in anything like moderate doses, proved itself very inferior as an antipyretic to large doses of quinine; and the combination of quinine and digitalis (1 scruple each of dig. and sulphate of quinia, spread over two days) produced results inferior to those from either drug singly. Veratrine (in doses of $\frac{1}{12}$ grain hourly, not given in the most asthenic cases) proved itself inferior as an antipyretic to quinine. The author thinks that the general result obtained by the cautious use of these various antipyretics is better than could have been gained by a purely expectant method; yet it is much less favourable than he had hoped it would be. He is inclined to believe that, after all, more may be done with substances which probably act specifically against the fever poison; and of these he selected calomel and iodine for trial. Of calomel, he says that it was given, usually, in 10-grain doses, once, twice, and sometimes even six times daily; and although it sometimes at first increased diarrhoea, its continuance usually stopped this. Usually, but not always, a marked defervescence occurred soon after the first dose. Ptyalism occurred in a few cases, but only slightly. Iodine was generally given in Willebrand's formula (iodine, gr. 6; pot. iod. gr. 12; aq. dest. 3 grms.; 3 or 4 drops to be taken every two hours, in water); a few patients took Sauer's prescription of pot. iod. ʒj ad ʒj daily. Only in a few cases did the most trifling symptoms of *iodism* appear. It did not seem that any striking results were produced in the temperature curve, or the duration of pyrexia. Of the 839 cases in the first group above-mentioned, 377 were treated without calomel or iodine; 69 died, or 18.3 per cent.; 223 had calomel, of these 26 died, or 11.7 per cent.; 239 had iodine, 35 died, 14.6 per cent. The correction of these results, however, by excluding the very slight cases, and also those which died within six days of commencing treatment, gives the following:—598 cases and 91 deaths,—or, 15.2 per cent.: of these 251 had neither calomel nor iodine, and 47 of them died—18.7 per cent.; 153 had calomel, and 19 died—12.4 per cent.; 194 had iodine, and 25 died—12.9 per cent. These results agree with the larger uncorrected figures to make out an apparently strong *prima facie* case for “specific” treatment as against expectancy; and they are confirmed, so far, by

the fact that the severe cases—those that ran at least twenty days before defervescence—showed similar results, viz., 30 per cent. mortality without specific treatment, 25·5 with calomel, and 21·7 with iodine. The author has a much higher opinion of calomel than of iodine, however, which he justifies by further and more elaborate statistics, for which we have no space.

But the results of all other treatment appear to be thrown into the shade by the effect of the frequently repeated cooling baths. Of 339 cases thus treated only 33 died, or 9·7 per cent.; only 52 were slight cases, and, excluding these, the mortality is even then only 11·5 per cent. It is true that this mortality is still much higher than has been obtained in some other places. But Liebermeister goes into a variety of particulars, which seem to show plainly that typhoid in Basle has always been extremely deadly, and that the circumstances under which the patients were treated in the recent epidemic were excessively unfavourable. As a matter of fact, the mortality above mentioned is not more than one-half that which was observed in a previous epidemic at Basle, with which these cases were strictly comparable. The most powerful form of the cool bath is a plunge of temperature 61° Fahr. and ten or fifteen minutes' duration, or (on Ziemssen's plan) a warm bath gradually cooled down to this level, and then kept at it for a little time. For very weakly patients it may be well only to continue the bath for five minutes. In private practice, a convenient plan is the use of Priessnitz's cold packing for ten or twenty minutes; its effect closely approaches that of the cold plunge. (*Deutsches Archiv für Klin. Med.* iv. B., 3 and 4 Hft.)

Operative Treatment of Inflammatory Exudations in the Pleural Cavity.—Dr. Bartels of Kiel sums up an important paper on this subject in the following conclusions:—1. Moderate pleural exudation may cause sudden death by mechanical hindrance of circulation or respiration. 2. It may also, even without being purulent, notoriously resist absorption. 3. The longer it remains, the slighter the chance of cure, for the compressed lung and the thoracic walls undergo changes which destroy the expansibility of the lung, and also the chance of a contraction of the chest wall. 4. Long existence of a copious exudation of any kind involves the danger of inflammation, ending in caseous deposits and phthisis. 5. For this reason even serous exudations ought to be evacuated by operation as soon as their quantity causes pressure, as also if absorption does not quickly set in. 6. We should not operate without pressing indications, so long as severe febrile reaction or a fresh exudation is to be dreaded. 7. The evacuation of a non-purulent exudate must be done with exclusion of air. 8. Purulent exudations

must be treated by establishing a large fistulous opening. 9. If we find pus when we expected serum, we must enlarge the trocar puncture and make a roomy fistula. 10. We may conclude there is pus if the cause be pyæmia, puerperal fever, or the like, or if there be pyrexia, without recognisable cause, continuing after exudation has ceased to progress, and (*with certainty*) if there be cellular *œdema of the chest wall*. 11. In all these cases we must immediately operate, for delay is dangerous to life. Even in pyæmia or puerperal fever, we must operate, for experience shows that there is even here a chance of recovery. 12. An equally urgent indication is the existence of pyopneumothorax, on account of the danger of septic infection from pus decomposed by the air entering from the lung. 13. To avoid putrefaction, the pleura should be well purified daily; this may be done either by blowing air through an inserted catheter, or by injection of water, or weak salt and water: this must be continued as long as the pleura secretes pus, and as long as that cavity will take up a larger quantity of the injected substance. (*Ibid.*)

The Treatment of Ambulant Erysipelas.—In the *Bulletin Général de Thérapeutique* M. Abelin's views on this subject are briefly stated. M. Abelin considers that of all the forms of erysipelas which attack children, this is the most serious one. He considers that the best and most efficient external treatment is that of hot-water baths, which not only produce advantageous local effects, diminishing the tension and heat of the skin, but also exercise a very favourable influence on the circulatory and respiratory organs. The respiration becomes slower and more complete, the secretions are restored, and the general tone of the system improved. The child is placed in a bath at a temperature of 38° centigrade. Gradually hot water is added till the temperature reaches 40° to 42° centigrade. After from ten to thirty minutes, according to the strength of the child, it is removed from the bath, wrapped in warm clothing, and kept in this state for a couple of hours. It generally falls into a deep sleep. In severe cases, two baths a day (morning and evening) may be given, and may be kept up till an improvement in the child's health is evident.

Use of Collodion in limiting the Actual Cautery.—In the *Journal de Chimie Médicale*, M. Voillemier says that all surgeons are aware how difficult it is to limit the action of the actual cautery, especially when it is desired to confine it to a very small extent of surface. The more the extremity of the instrument is edged or pointed, the more necessary it is that its upper part should be enlarged as a sort of reservoir of heat for the production of deep cauterization. But this very reservoir

gives rise to burns, of the first or second degree, of the adjacent tissues, and to a greater or less extent. This accident is of some importance. It is the cause of those horrible pains to which the patient is liable for some days, and which are not relieved even by the application of refrigerants. After a few days the epidermis becomes detached, leaving the derma bare, and exposing around the point destroyed by the iron a superficial wound of some extent. It is common to see these superficial wounds remain for a long time, and to become continuous with those which succeed the fall of the eschar. It has been attempted to prevent this complication by the use of damp cloths, plates of wood, &c., but these fail to protect the skin, and they impede the operation. A much better plan is to coat the integument for some distance round the part to be destroyed with a couple of layers of collodion, and to wait till the latter is dry before applying the cautery. This precaution is necessary to prevent the fumes of the chloroform catching fire and frightening the patient. The layers being well dried, the cautery is applied in the usual manner. It will afterwards be found that no portion of the skin is injured except that touched by the instrument. The dry collodion is a layer of cellulose; and as cellulose is a worse conductor of heat than even wood, it protects the integument thoroughly. It is best not to remove the collodion subsequently to the operation, but to leave it on for a few days. There is no necessity for dressings, the parts cauterized are destroyed and insensible, and the others are untouched and painless.

Iodide of Potassium in the Treatment of Corneal Spots.—The experience of M. Castorani on this point is shortly given in the *Revue Médicale* (July 15th). It seems that the iodide of potassium, according to its degree of concentration, or the frequency of its employment, acts sometimes as a caustic, and sometimes as a solvent. In either of these forms it may be employed to remove corneal spots. It is, however, as a caustic that it has its best effects in removing corneal spots. Employed as a solvent in primitive disseminated keratitis, it is equally valuable. In conjunctival granulations, M. Castorani has also found the iodide do good service, especially when no vessels exist upon the cornea. The only objection to this application is the intense pain it produces, and which many patients cannot tolerate. M. Castorani also uses several collyria of the iodide, of which the following are a few:—a saturated solution of iodide of potassium and glycerine, equal parts; a saturated solution of

¹ We have found freezing the skin by means of atomized ether to be an excellent means of preventing both the momentary and subsequent pain of this operation.—[Ens.]

iodide of potassium, tannin, and glycerine; iodide of potassium, glycerine, and sulphate of copper, in equal parts. The first of these collyria is, he says, of great benefit in ulcers of the cornea.

Turpentine in Tympanitis.—In the *Bulletin de Thérapeutique*, M. Cantel contributes a very instructive paper on the uses of turpentine in tympanitis, and in enteric affections generally. He quotes among other illustrations of its value the following case which came under his notice recently: on being called in, he found the patient, a young girl, aged sixteen, with contracted features and haggard expression of the eyes, lying on her back; the pulse small and very rapid, the tongue and teeth furred and smoky, the abdomen immensely distended, the bladder emptied by slow and inefficient contractions, constipation obstinate; added to these symptoms were intense dyspnœa and delirium. Up to the day before the symptoms had been those of a slight typhoid fever of the mucous type. Before his arrival, enemata and sulphate of magnesia had been given in large doses, without producing any beneficial effect. While reflecting on the best mode of treatment, M. Cantel remembered Graves' advice about turpentine, and prescribed the following mixture:—Essence of turpentine, 6 grammes; castor oil, 9 grammes; water, 100 grammes; a spoonful every hour. Embrocations were applied to the abdomen every three hours, the liniment used being olive oil, 120 grammes; essence of turpentine, 12 grammes. Broth and wine of quinquina (equivalent to our tinct. cinchonæ?) were also administered every two or three hours. Next day the state of the patient was vastly improved. A solid and three or four liquid stools followed the use of the medicine, the urine was abundantly voided, the dyspnœa and delirium had disappeared, and the patient was calm and sleepy; the fever had subsided, the tongue was more moist, the respiration more regular, and the tympanitis was reduced one-third. The only change in treatment was the less frequency of the dose, to be given now every three hours. The day following the improvement was still more manifest, and the tympanitis was reduced one-half. The pulse had come down from 115 to 96, and the tongue was quite moist. In twelve days, from the day of M. Cantel's arrival, the cure was completed.

The Physiological Action of Belladonna.—A Memoir which has just been published by M. Meunier is of considerable interest. Its details, however, are too numerous for extract. We shall, therefore, briefly abstract some of the author's conclusions. On the organs of respiration belladonna, in a poisonous dose, acts as a paralyzant. The respiration, at first rapid, gradually becomes difficult and slow, and the movements of the chest are those seen on section of the pneumogastric nerve.

M. Meuriot states that it is necessary to give atropine in large doses, in order to influence the pulmonary pneumogastric branches. This, he says, is the reason why belladonna so often fails in asthma, when other substances in very small doses have a beneficial effect. In reference to the effects on the nervo-muscular system, the author states that atropine first destroys sensibility, and afterwards destroys the excitability of the motor nerves, but it is only in large doses that it affects the irritability of the muscles. This is especially true in the case of frogs. In man, it is only in very grave cases of poisoning that loss of sensibility is found. In therapeutic doses atropine does not destroy the sensibility of the nerves, but its topical action (*vide* "Researches of Trousseau and Béhier") is to diminish pain. Contrary to the statements of other observers, M. Meuriot alleges that it does not diminish reflex actions; indeed the results of a great number and variety of researches have convinced him that atropine possesses in some degree the power of exciting the spinal cord. The action of belladonna on the brain, says M. Meuriot, is not that of a hypnotic; it is, perhaps, that of a stupifying narcotic, producing stupor and coma, but not sleep. In therapeutic doses it produces restlessness and insomnia; in larger, but not poisonous doses, it produces disturbance of the organs of sense, vertigo, hallucinations, trembling, and a strange sense of fear, wild dreams, and delirium. He denies that it has any *elective* action on the brain, and regards all the cerebral effects as the consequence of the disturbance of the circulation which it brings about. Post-mortem examination of animals shows the enormous congestion of the vessels of the brain. The action on the temperature has been carefully investigated by M. Meuriot, who finds that in man the temperature is increased by some tenths of a degree from $\cdot 5$ to $1\cdot 1$. In animals he has found small doses increase and large ones diminish the temperature; thus he has obtained an increase of from two to three degrees, and a diminution of from four to five. The increase of temperature is coincident with increased heart action, and the diminution with the diminished frequency of the heart. The action of belladonna on the secretions is entirely the result of its effects on the nervous and circulatory system, for when brought directly into contact with the glands it promotes secretion. In concluding his remarks, M. Meuriot states that belladonna must be regarded as having a special action on the vessels and innervation of the heart, on which action all its other physiological and therapeutical effects depend. In fine, he classes it under the *Vasculo-cardiacs* of M. Sée.

Notes and Queries.

INJECTIONS IN CHRONIC CYSTITIS.—The following are a few formulæ of the injections employed by M. le Dr. Mallet:—
Water, 300 parts; tincture of iodine, 3 parts; iodide of potassium, 1 part. Water, 300 parts; tincture of iodine, 1 part; iodide of potassium, 1 part; extract of belladonna, 1 part. Water, 500 parts; hyposulphite of soda, 5 parts. Water, 300 parts; phenic acid, 3 parts; alcohol, 1 part. Water, 300 parts; permanganate, 3 parts.

TREATMENT OF ECHINOCOCCI.—M. Hjaltelin, of Iceland, alleges that the tincture of kamala possesses a remarkable power of destroying the echinococci. It is administered internally, and he says, being thus absorbed by the vessels whose confluence forms the portal vein, it acts almost immediately on the liver.

CARBOLIC ACID AND GLYCERINE OF TANNIN.—Dr. W. Playfair calls our attention to the fact that, in slightly abbreviating the note on this subject which he sent us, we accidentally omitted to say that the original suggestion of the use of the preparation in question was made to Dr. Playfair by Mr. Spencer Wells.

ANIMAL DIET IN PSORIASIS.—In reference to an abstract of M. Passavant's views on this subject, which appeared in our last number, Dr. J. Owen Evans writes to us to offer his own personal experience of the disease and its treatment. Although he places most reliance on arsenic, he states that in his own case he has found lamentable consequences ensue from indulgence in vegetable diet, and the happiest results from a regimen of nearly purely animal food. As, however, he has never tried the animal diet unaccompanied by arsenic, he is unable to express a definitive opinion.

TRACHEOTOMY IN CHILDREN.—A very interesting case, showing the dangers and advantages of this operation when false

¹ The Editors, being desirous of making this department a useful medium of communication between practitioners, will be glad to receive short notes on theoretical or practical points in therapeutics,—brief jottings on those numerous queries which suggest themselves from time to time to a medical man as he “goes his rounds,” but which he has neither the time nor, in some cases, the opportunity of answering. The Editors do not pledge themselves to reply to every question addressed to them, but they hope to make the “department” the means of supplying the information required, and this they can only effect by the hearty assistance of their readers.

membranes have begun to develop themselves, is reported in the "Bulletin des Hôpitaux" of the *Bull. Gén. de Thérapeutique*, July 30th.

TREATMENT OF ERECTILE TUMOURS.—M. Valette, Professor of Clinical Surgery at the School of Medicine of Lyons, proposes a method for the removal of erectile tumours, which is a combination of the process of ligature and of that of cauterization, and which he calls the "caustic-ligature." The first part of the operation consists in passing a number of ligatures around and through the tumour. The second part in the introduction of a trochar whose canula contains a chloride of zinc seton. On withdrawing the canula the seton is left behind, and the operation is completed.

ELECTRIC RESORPTION OF TUMOURS.—In a paper recently presented to the French Academy of Sciences, M. Scoutetten, a *savant* well known for his researches on electro-therapeutics, objects to the term electrolysis as applied to the removal of tumours. He says the electrolysis of tumours is an impossibility, and he gives very good reasons for this assertion. Take, for instance, says the author, a hydrocele tumour containing a hundred grammes of liquid. By passing through this a current from a medium-sized pair of Bunsen's elements, we may completely remove the tumour in the course of twenty minutes, or half an hour at the utmost. Could this have been achieved by electrolysis? No: firstly, because such a battery as that referred to could not decompose a greater quantity of water than $4\frac{1}{2}$ grammes in an hour; and secondly, because if it did decompose the 100 grammes in that time, it would develop such a volume of gas as to convert the unhappy patient into a balloon. M. Scoutetten concludes that the process is a physical one of a different kind, the effect of which is the rapid absorption of the liquid of the tumour; and hence he terms it *electric resorption*.

STILLÉ'S THERAPEUTICS.—The last edition of this work, which has been recently published, contains new articles on bromine, chromic acid, carbolic acid, permanganate of potash, nitrous oxide, the sulphites, and calabar bean. The article on electricity is much enlarged.

PHYSIOLOGICAL ACTION OF OXALIC ACID.—"A Birmingham Physician" wishes to know whether M. Pelikan of St. Petersburg has not made some investigations which show that the action of oxalic acid in small doses is of a different *kind* from its action in large ones; and, if so, where he may find these researches recorded?

THE VARIETIES OF LOCAL ANÆSTHESIA BY ETHER SPRAY.—A "Correspondent" makes the following remarks:—"In using

Richardson's apparatus I find that the result of the ether atomization is by no means constant. The anæsthesia is produced in one of two forms, which is dependent for its production on some condition of the atmosphere (possibly hygrometric) which I have not yet discovered. This is what I mean:—Sometimes the effect of the spray (which I chiefly employ before using the hypodermic syringe) is to produce a thick layer of ice, which destroys the sensibility of the skin without producing any other noticeable change. At other times after a few whiffs, the skin suddenly blanches (as rapidly as a flash of lightning), but no ice is produced. In this case the skin is like a piece of hard, white, rough pasteboard. In the former case it is as soft, or nearly so, as usual. In the first case no harm is done to the skin. But in the second, the part frozen is found sore and very irritable for a couple of days. Can any of your readers suggest a means by which the first form may be always obtained? I fancy I always get the ice-anæsthesia in moist, damp weather, when the air is charged with vapour. Do you think, then, that if I were to use a double bottle and nozzle, and to eject water and ether-vapour simultaneous on the part, I should achieve this most desirable consummation?"

TRANSFUSION IN LEUCOCYTHEMIA.—Dr. Waring-Curran wishes to know whether any of our readers have seen transfusion employed in leucocythæmia, and, if so, with what results.

RELATIVE EFFECTS OF SAPONINE AND SULPHO-CYANIDE OF POTASSIUM.—The *Journal de Chimie-Médicale* reprints M. Pelikan's paper on saponine. Among other points of interest in the memoir is the contrast which the author draws between the two above substances. The only marked difference in the therapeutical effects of the two is that saponine produces paralysis of the muscles without tetanus preceding, while the sulpho-cyanide always gives rise first to tetanic or cataleptic convulsions.

ANTHELMINTIC PILLS.—The following formula is from *L'Union Médicale*:—Mercury, 45 grammes; axunge, 30 grammes; powdered aloes, *quant. suff.* Carefully triturate the axunge and mercury till they are amalgamated, then add the aloes, and make into pills of 25 centigrammes.

UTERINE RHEUMATISM.—M. Pigeolet has recorded a number of cases of this affection, and, so far as can be gathered from his accounts, he relies much on the influence of tepid baths, Dover's powder, and leeches to the hypogastrium.

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¹ Any of the foreign works may be procured by application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

THE PRACTITIONER.

OCTOBER, 1868.

Original Communications.

ON A NEW TONIC [ACETATE OF METHYLAMINE] AND ON TONIC MEDICATION.

BY M. LE DR. BEHIER,

Professor of Clinical Medicine in the Faculty of Paris, Physician to La Pitié ;

AND

M. PERSONNE,

Pharmacien en Chef of La Pitié.

THE firmer and more assured progress which medical science is now making from the basis of experimental physiology and the physico-chemical sciences, demands a complete reform in therapeutics. That principal part—which (to use a phrase in vogue amongst us) is the very *crown* of the medical edifice—can no longer be kept at the level of empiricism. All our efforts ought to be directed towards thoroughly testing the physiological action of substances which are put forward as remedies. The study will be long and difficult, but all labour undertaken in this path will be efficacious. It is undoubtedly the true road which we must follow. However important time and space may be to us, it is here that truth is to be found, and each of us must devote himself to the undertaking.

And, in fact, there are already some results acquired. They are precious, and to you,¹ in particular, they must be specially welcome,

¹ The following remarks of Professor Behier were contained in a letter to Dr. Anstie, inclosing M. Personne's paper, which follows them.

since they confirm, in the way of practical comment and justification, some of the doctrines of your beloved master, Todd. I refer to the employment of *tonic* medication in the treatment of acute diseases. For many years clinical experience had led me to a very frequent use of tonics in cases in which they were entirely contra-indicated, and peremptorily excluded, according to the notions of a great number of our *confrères* on this side of the Channel. Educated in the ideas which Broussais had enounced with regard to inflammation and fever,—ideas which then dominated even the minds of those who resented the exclusive absolutism of the father of physiological medicine,—I was nevertheless soon led by facts to lose my fear of wine, quinine, and light food in the treatment of typhoid fever, and even of pneumonia. Later on, I found, in the excellent Memoir of Kaltenbrunner on Inflammation, a precept which justified, in my view, the practice which I had already adopted when I read these remarks: “For the resolution of an inflammation a certain degree of strength is needed in the economy; a less degree of resistance conduces to suppuration, a still smaller degree of strength entails gangrene.” I then read Todd, and I found, in his Clinical Lectures, an explanatory corollary to the opinions of Kaltenbrunner, and, further, that great and sound therapeutic maxim—there is no specific in existence which can arrest an acute disease, the evolution of the latter being in a manner inevitable. It was the answer to the dogma of *specificity*, at that time extolled on our side of the Channel; a dogma ill-founded and dangerous in my opinion, were it only because it substitutes the idea of the disease—an abstract and entirely conventional idea—for the study of the patient; that is to say, for the investigation of the organism which has deviated from its regular or physiologic state, the only tangible and possible reality, the only substratum accessible to our therapeutic processes. But this is not all. In recent years the arena has been notably enlarged, and tonic medication has received from the physiological researches of our Claude Bernard a new and very singular value. The beautiful experiment on the sublingual nerve has clearly proved that the dilatation of the vessels resulted from suspension of the influence of the great sympathetic, and that nutritive and secretory activity always corresponded with this dilatation. But

vascular dilatation, with its resulting exaggerated secretions and organic products of an abnormal type, are the best known facts of inflammation. This latter state is therefore the consequence, not of a hyperactivity, of an exaggeration of the vital properties of the tissues, but much rather, on the contrary, the definite result of a vaso-motor paralysis, from which flow, as consequences, all the nutritive and secretory disturbances. This discovery, which appears accurate, points to a larger and more habitual use of tonic medication. This treatment is then no longer appropriate only to certain special cases, in which the affected organism is incapable of supporting the morbid process without succumbing to its necessary effects. It is no longer an exceptional method, in discord, so to speak, with the essence of the pathological phenomena. It is a rational method, addressed directly to the existing disorder, and by which the vaso-motor paralysis, which constitutes well-developed inflammation, is combated and relieved. It appears to me that in the actual state of our knowledge this way of looking at the facts is regular and sensible. As I have already said, it notably enlarges the basis of action for tonic medication, to which it has given a power, logically grounded on facts demonstrated by experiment.

You will certainly, my friend, accept these general positions ; you who have observed, as carefully as any one, the confirmatory evidence which is afforded by the sphygmograph. That instrument shows plainly the effect of tonic agents on the *arterial tension*, which is very positively increased by the action of these remedies. But how many points still wait to be explained ! How is it that even when arterial tension, which has been temporarily increased by the tonic, is, after a time, again relaxed, the temperature *still* remains reduced, and the pulse less frequent than before the dose was given (a circumstance, be it said in passing, which notably contradicts my honoured friend M. Marey's theory of fever) ? How is it that in acute diseases tonics suppress delirium with such a marvellous rapidity ? It is said, as I well know, that delirium is an outcome of cerebral ischæmia ; but the proof of that assertion is still somewhat hypothetical. What are the special portion or portions of the nervous system which are particularly influenced by tonic medication ? Is it the great sympathetic which especially feels the influence ; or is it, on the

contrary, a predominance of the pneumogastric nerve, and a consequent action upon the centre of circulation, that is produced, either through the vagus in its totality, or by functional stimulation of that special branch lately demonstrated in the rabbit (depressor nerve of Ludwig and Cyon), but as yet not well made out in other animals? Or is it a special modification of the cerebro-spinal centre, exciting the play of the antagonism which that system seems to possess in relation to the nerves of organic life, an idea which appears to be very worthy of belief? Among these results, what is the rate and the action of *reflex movements*? In short, as the different substances modify and impress, some one, and some another part of the nervous system, must we not clearly define these elective actions?

So numerous are the problems whose solution must be the work of the future, and the study of which is a duty incumbent on our generation. We shall certainly leave a great part to be settled by our successors. But, in the meantime, this is the path, this is our duty. In this path we are far from the doctrine of Brown; but we ought clearly to recognise that Brown, although a systematist, and far too great an exaggerator, never deserved the violent attacks which have been directed against him. Whatever we may think with respect to this point in medical history, which it would be interesting to discuss, it remains certain, as it seems to me, that the theories of inflammations and of fevers are entirely changed, and that from these profound modifications there results a larger, more logical, and less subordinate application of tonic treatment. In this belief I have prosecuted my researches on acetate of methylamine, of which I send you the first part. This substance appears to me powerful, and easy to manage. It has the property of acting very rapidly, and of causing no real danger. The experiments are as yet few, but I determined to send these first essays to the *Practitioner*. The learned note of my very distinguished friend, M. Personne, Pharmacien en Chef of La Pitié, is a good beginning of the affair. I will take care to send you the later results of my experimentation, which must be prolonged before we can arrive at definite conclusions. *Vale et me ama.*

[The preliminary part of M. Personne's work includes his]

CHEMICAL RESEARCHES ON ROASTED COFFEE.

The changes which heat effects in the elements contained in the green coffee berry have been little studied ; we merely know, from the researches of MM. Baitron and Fremy on the one hand, and of M. Payen on the other, that the brown bitter substance and the aromatic principle are produced by the decomposition of that part of the coffee bean which is soluble in water, and that a large part of the caffeine disappears during the roasting. It is said that this (caffeine) is carried away with the volatile products generated in the operation.

By roasting coffee in an apparatus which allows of the recovery of all the volatile products, I have ascertained that if caffeine be carried away with the volatile products, it can only be in such small quantity as is not appreciable by weight, and cannot explain the considerable loss which takes place during roasting carefully performed. The loss is experimentally found to equal nearly one-half of the caffeine originally existing in the coffee. I have succeeded in demonstrating that the lost caffeine has been transformed into a volatile base—methylamine, or methylammonia ($C_4 H_5 N$), which was discovered by M. Wurtz. The following are the facts which prove the change of caffeine into methylamine during coffee roasting.

If pure caffeine be submitted to the action of heat, and the vapour be carried through a tube heated to about 300° Cent. (about the heat which is necessary for roasting), and filled with fragments of pumice-stone, which delay the passage of the vaporized matters, only a very feeble decomposition occurs ; the greater part remains unchanged, and the little that is decomposed gives no characteristic product except cyanogen. This experiment tends to prove that it is not the caffeine which furnishes the volatile alkaloid existing in roasted coffee. But a very different result is obtained if, instead of acting on free caffeine, we experiment on caffeine in analogous circumstances to those in which it exists in green coffee. M. Payen has, in fact, shown that caffeine exists in that berry in the form of the *tannate*, i.e. a combination of caffeine with a tannin peculiar

to coffee. On submitting to the action of heat the tannate of caffeine which has been prepared with tannin of gall-nuts, we obtain, as with green coffee, methylamine: this compound behaves, under the influence of a temperature of about 300° Cent. in a manner similar to the tannate of caffeine first isolated by M. Payen. The whole of the methylamine produced during the roasting of coffee is not found in the solid residue; a certain proportion escapes with the volatile matters. It is easy to extract the alkaloid from roasted coffee by distilling the extract of coffee, *made with cold water*, with a weak base, such as lime. The addition of this alkali to an infusion of coffee immediately liberates the methylamine, the special ammoniacal odour of which is readily perceptible.

The alkaline liquid obtained is saturated with hydrochloric acid, and evaporated to dryness; the residue is treated with boiling absolute alcohol, which dissolves the salt of methylamine, in a state of great purity. This salt, distilled with solid potash, quits its base, which remains in the water, in which it is very soluble; on saturating this alkaline liquor with acetic acid we obtain the acetate of methylamine, which may be employed in the same way as the acetate of ammonia. This base has been separated from coffee in sufficiently large quantities to be well recognised by its physical and chemical properties and by the analysis of its double chloride with platinum.

The existence of methylamine in roasted coffee being perfectly demonstrated, we may ask whether this substance may not be the body, or one of the bodies, to which we should attribute the well-known excitant powers of coffee. These stimulant properties ought not, in fact, to be attributed to caffeine; for, besides the fact that green coffee does not possess any such properties, we have seen that the caffeine partially disappears during the process of roasting. Experimental research must now decide the question.

PHYSIOLOGICO-THERAPEUTICAL RESEARCHES WITH MAREY'S
SPHYGMOGRAPH, AS MODIFIED BY PROFESSOR BEHIER.

The acetate of methylamine was experimentally administered to seven patients in M. Behier's Clinic at La Pitié.

Observation 1 was on the case of an anæmic man with *small* excited pulse, 105 per minute. Ten cubic centimetres (about $2\frac{1}{2}$ drachms) of the drug were given. The primary effects were *increased* rapidity of pulse and *diminution* of arterial tension. The maximum frequency—125—was attained 8 minutes after the dose, and persisted till 46 minutes after the administration. The arterial tension, which had been much lowered, was now beginning to recover itself. At one hour and 17 minutes from the administration, the pulse being now 120, the arterial tension had become very decidedly *higher* than before the dose, and was, in fact, very remarkably high.

The amount of spring-pressure employed throughout this experiment equalled 150 grammes.

Observation 2 was made on a young man with febrile excitement of pulse—105 per minute—but with considerably greater heart power, the maximum pulse-curve being obtained with a spring-pressure of 289 grammes, which was employed throughout the experiment. Ten cubic centimetres of the acetate were given at 9.43 A.M. The first visible effects were registered at 9.57; the tension was now sensibly *lowered*, and the pulse frequency *diminished* by 10 beats. At 10.9, the tension had about half recovered itself; the frequency had increased again to 102. At 10.41, nearly one hour after the dose, the tension had augmented to considerably *more than its original height*; the frequency of the pulse was 100; and a curious irregularity of the general line of arterial pressure was observed, indicating, apparently, an unusual degree of influence from the respiratory movement. No alteration of the heart-sounds was audible. The patient experienced a sensation of cold in the lower extremities.

Observation 3 was made on a patient who, with a pulse of 87, exhibited a large pulse-wave (8 millimetres in height) under a spring-pressure of as much as 270 grammes. Ten cubic centimetres of the acetate were given, and 4 successive traces were

taken at intervals during the next 70 minutes. The phenomena indicated a constant *augmentation* of arterial tension, with moderate *increase* of pulse frequency. At the final observation the tension was very markedly higher than before the dose, and the pulse was 95 per minute. No heat, no pain, nor any noticeable sensation was experienced by the patient throughout.

Observation 4 was made on a man affected with chronic peritonitis, with a pulse of 88, and giving a trace of good height (6 millimetres) under a spring-pressure of 270 grammes. Five cubic centimetres (80 minims) of the acetate were given, and 4 successive traces taken, at intervals, during an hour. The effect was a steady and progressive elevation of arterial tension, the frequency of the pulse remaining unaltered. The final elevation of tension was very considerable.

Observation 5 was made on a patient with non-febrile state of circulation, pulse 72, slightly *irregular*, but giving, under a spring-pressure of 299 grammes, a curve of medium height (5 millimetres). Ten cubic centimetres ($2\frac{1}{2}$ drachms) of the acetate were given, and 7 successive traces taken during the next 80 minutes. A moderate elevation of tension was reached in 13 minutes and maintained for 5 or 10 minutes longer. At 33 minutes after the dose tension had sunk considerably *below* the original level, the pulse was more irregular, and there was a notable increase of undulations in the line of descent of each pulse-wave. Twenty minutes later tension had again augmented to a higher level than ever, the oscillations had nearly disappeared, and the only remaining irregularity of the pulse seemed due to a slight respiratory influence. Twenty minutes later the tension had fallen again to its original level. At the final observation it had risen to a higher point than it had reached at all; the pulsations were very regular, and very slightly quicker than before the dose. Frequency was never much affected throughout.

Observation 6 was made on a patient with excited but not febrile pulse—105,—reaching its maximum height of curve (8 millimetres) under a spring-pressure of only 150 grammes. This observation is not perfect, owing to the instrument having slipped a little before taking the second trace: but the effects of the drug were, nevertheless, very visible. Fifteen cubic centi-

metres of the acetate (170 minims) were taken, and a maximum elevation of arterial tension was reached 29 minutes afterwards; at this time the pulse was *excessively contracted*, 100 per minute, and there was a general sensation of cold. Fifteen minutes later, there was a sudden sensation of *heat* and an outburst of *sweating*, and the tension was materially lowered; pulse 115. At the final observation, 78 minutes after the dose, the tension was yet further lowered, but still much above its original level. Pulse 100; sensation of heat further *increased*.

Observation 7 was made on a patient (the subject of aortic narrowing) with excited but not true febrile pulse—100 per minute,—height of curve $8\frac{1}{2}$ millimetres; no diastole. Sixteen cubic centimetres of the acetate were given; in 5 minutes there was a very notable *elevation* of tension; the frequency was 105. In the six subsequent tracings which were taken, during the 80 minutes succeeding the dose, there were fluctuations of tension; but on the whole it remained markedly elevated, and even the final trace was greatly superior, in that respect, to that taken before the dose. The final frequency was 95; but it is observable that there was no uniform relation of the pulse-rate to the tension during the experiment.

From the foregoing researches we conclude that the acetate of methylamine (1) increases arterial tension; (2) has little effect on the pulse-frequency; (3) produces irregularities of the pulse in some cases [when the dose is large ?—EDS.].

The above experiments, which were made by M. Personne, on patients in M. Behier's wards at La Pitié, and under his observation, are very striking to any one who is at all familiar with the physiology of circulation. I regret that we could not reproduce the original tracings, which were sent to us with M. Personne's paper; but, in the first place, it was hardly possible, on the score of space, and, in the second place, I rather doubted if the actual sight of the traces (so unfamiliar is sphygmography still to most medical men) would add much to the clear and accurate description of the vital facts taught by them which is given above. Lest any one should miss their lesson, I feel tempted to add a few words, rather by way of reiteration than of expansion of M. Personne's remarks. What

is very plain to those who are used to this kind of research is, that very various conditions of excited pulse (short of the extreme febrile type, which is not here represented) are amenable in the same kind of way to the soothing and regulating action of the acetate of methylamine. It would appear that in all these various states it produces, when given in the moderate dose of from 80 minims to $2\frac{1}{2}$ drachms, a stimulant effect which increases arterial tension. The pulse becomes firmer and tenser, whilst reduced in *size*. It is interesting to note that in the instances where (a larger dose having been given than usual) there occurred a sensation of heat and an outbreak of perspiration, the characteristics of *lowered* tension simultaneously showed themselves. M. Behier, in the remarks given above, hints at a strong similarity between the action of the acetate of methylamine and that of acetate of ammonia; and, in private conversation, he has still more strongly insisted on this parallelism of effects between the two drugs. I am not surprised to hear this: for, with regard to acetate of ammonia, I long ago assured myself, by clinical observation, of the fact that that kind of influence of this remedy which is really useful in mitigating the acute symptoms (of pneumonia or pleurisy, for example) is that tonic influence excited by doses short of the strength at which a somewhat sudden arterial relaxation (judged roughly by the feel of the pulse) and a simultaneous burst of sweating are produced. It is by no means such quantities of acetate as drown the patient in sweat that are most "antiphlogistic." To recur to the acetate of methylamine, I would remark, finally, that the singularly plain and consistent results of the experiments appear even more instructive if we observe the precaution that was taken to secure uniform results by the adoption of a modification of the sphygmograph, which allowed the exact gramme-weight of spring-pressure on the artery to be calculated (the same object as has been attained, in a different way, by Dr. Sanderson) in each instance at the outset of the experiment, and kept rigidly uniform throughout. And this precaution brings out, incidentally, the fact, that equally with very weakly and with comparatively strongly acting hearts, the same tonic influence on the circulation was produced by the drug.

F. E. ANSTIE.

ON THE THERAPEUTIC VALUE OF OIL AND WATER IN THE TREATMENT OF SKIN DISEASES.

BY JOHN HUGHES BENNETT, M.D., F.R.S.E.

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THE skin, as is well known, is furnished with two kinds of glands for the purpose of keeping it soft and pliable—viz. sebaceous and sudoriparous glands. While the excretions they pour forth serve other important purposes among the general uses of the economy, there can be little doubt that they have a special action on the skin itself. Further, their diminution or suppression is a circumstance that materially influences the progress of various diseases which attack this important organ. Observation has induced me to believe that there are some of these which more especially affect the oily, whilst others injure the watery secretion. For example, prurigo, lichen, and the scaly diseases are accompanied by dryness of the skin, whilst eczema and impetigo are accompanied by excessive moisture of the surface. Be this as it may, experience has convinced me that there is a class of skin disorders which are readily cured by applying oil or grease constantly to the surface, whilst there is another class which require a similar application of water. Moreover, I believe, although innumerable ointments and lotions have long been employed in cutaneous diseases, that the active agents in all of them, with few exceptions, are not the drugs which they hold in suspension or solution, but simply the oily or watery matters which constitute the bases of these preparations. The establishment of this doctrine, and the careful discrimination of the diseases or textural alterations which

require the one remedy or the other, must not only simplify but give greater precision to our therapeutical efforts for their proper management.

Indications for the employment of oil.—In all cases where there is excessive dryness of the skin, inunction with oil or grease is necessary. For eruptions which are essentially dry in their nature, such as prurigo, lichen, psoriasis, lepra, pityriasis, favus, &c. oil or grease are essential remedies, and have long been used in the form of various ointments. Pure oil, though beneficial when friction is desirable, and used as a liniment, is too thin and too easily removed from the skin to produce a permanently emollient effect on indurated epidermis. Hence grease or fat, that is, inspissated oil, has long been employed as ointment. Even this, however, rapidly melts on the surface of the warm skin, and is soon rubbed off, or absorbed by the clothes or substances on which it is spread. This is corrected by mixing with it various dry powders, such as sulphur, oxide of zinc, calamine, &c. These give to the fat a consistence which renders its action permanent, and prevent its rapidly melting or being too readily lost or absorbed.

I have long satisfied myself that the various powders mixed with fat act mechanically by thickening it, and exert no other therapeutical action. Sulphur ointment, for example, is an excellent application in scabies, because lard thickened with sulphur is more tenacious, more readily blocks up the follicles and grooves inhabited by the itch insect, and thus induces their more perfect asphyxiation. But that sulphur exerts any specific action, either on the insects or on the human economy, is disproved by numerous facts. In the same manner, the oxide of zinc, or white precipitate ointments, are excellent applications in prurigo or lichen; but that zinc or mercury are the active agents which cure is disproved by the circumstance that simple lard will in those diseases, as in scabies, produce, though more slowly, the same effect.

In the scaly eruptions, however, more especially psoriasis and lepra, the admixture with the lard of pitch or tar is essential to success. These substances unquestionably contain a principle which exerts a remarkable local action in the removal of these diseases. I say local, because I have given pitch pills and

infusion of tar in large quantities internally without causing any effect whatever. Neither has creasote nor carbolic acid any influence on these scaly eruptions. No remedies probably are so beneficial in relieving pruritus in the skin, especially creasote mixed with ten times its bulk of oil; but in psoriasis they are of no avail. Pitch combined with lard, therefore, is essentially the remedy in squamous diseases of the skin.

It is now twenty-seven years ago that I pointed out, as the result of a series of investigations into the parasitic fungi growing on the skin, that such growths seldom flourished when deprived of access to the air. I therefore proposed, instead of applying various ointments to the scalp in cases of favus, first, to remove the crusts by means of poulticing, and, secondly, to keep the clear surface covered with oil. So long as this is done the head can be kept free from the disease. In recent cases, after six weeks or two months, a permanent cure is not unfrequently produced. In chronic cases, though a cure is never readily obtained, the offensiveness of the disease and all irritation is at once removed. In 1840 I watched with great interest the results of the depilatory treatment carried on in the Children's Hospital, of the Charity Hospital, in Berlin, by Professor Barez. Although two old women were constantly employed there pulling out the hairs from the scalp in cases of favus, in no one single instance did I see a permanent cure effected. The practice has been revived by Bazin and others, but such is the difficulty of thus eradicating the hairs in the human scalp, and such is the tediousness and pain of the treatment, that I do not anticipate much success from its employment. It has been adopted by Dr. McCall Anderson, of Glasgow, in the Skin Dispensary of that city. A few of his cases, said to have been dismissed cured, have found their way subsequently into my Clinical Skin Ward of the Edinburgh Royal Infirmary, with their heads covered with favus. I mention this merely to show how very difficult it must be in hospital and dispensary practice to determine whether a permanent cure has really been produced. Although, therefore, I have tried, and continue to try, every kind of treatment that has been proposed in my Clinical Wards, for the cure of favus, my conviction is that, after removing the crusts, the best is the simple application of oil, combined, in scrofulous children, with good nourishment.

Indications for the employment of water.—In all cases where there is excessive moisture on the surface, originating in vesicular, pustular, or ulcerative diseases, the constant application of water is necessary. I say *constant* because occasional applications by means of lotions or of baths are of little service. For this purpose lint well saturated in water is first applied to the affected parts. This must be covered with oil silk or gutta-percha sheeting, that should well overlap the lint below so as to prevent evaporation. The whole must be kept in its place by a bandage, or the application of strings, which is often a matter of great difficulty. Patients are very slow in accepting the idea that *constant* moisture of the part is absolutely necessary, and they seldom so apply the upper covering in such a manner as to prevent evaporation from the lint below. The result is, it becomes dry, sticks to the inflamed surface, and is a source of irritation rather than of comfort. Hence vigilant superintendence and frequent visits are requisite in order to watch the progress of the case. Even in the hospital, constant care is necessary to see that nurses properly cover the eruption; and when, as sometimes happens, this task is made over to the patients themselves, it almost always fails.

There are some portions of the surface which it is very difficult to keep moist and well covered, such as the face and axilla. But by carefully adapting lint and gutta-percha sheeting, attaching strings to the edges of the latter, to keep the whole in its place, and the covering close to the skin, so as to prevent evaporation, I have never failed in ultimately carrying out my object. For the face it is necessary to construct a mask, having apertures for the eyes, nose, and mouth, and even then it is difficult to exclude the air, especially at the angles of the mouth. When the eruption is very general over the surface, tepid baths continued as long as possible must be had recourse to. Hebra has caused some of his patients to continue in them for weeks together, but of the arrangements whereby he has been enabled to accomplish this I am ignorant.

The effect of the moist application to the acutely inflamed surface, is soon to remove all local irritation, and especially the irritation or smarting so distressing to the patient. It also softens and removes the scales and incrustations, which in them-

selves often tend to keep up the disease, and prevent cleanliness of the surface. After a time the indurated parts begin to soften; the margins of the eruption lose their fiery red colour, and merge into that of the healthy skin, and, finally, the whole surface assumes its normal character. In the chronic impetigo, which attacks the chin in man, as well as when the scalp or other parts covered with hair are affected, it will be best to remove the crusts, in the first place, by poultices. It is then necessary to shave the parts every other day with a very sharp razor, using flour and warm water as a lather, and not soap; or a pair of sharp scissors with flat blades may be used to cut the hair close to the skin. If this be not carefully attended to, the short thick hairs prevent the application of moisture to the skin, a space is left between it and the lint, in which the discharge collects and concretes, and no progress towards a cure is produced.

This treatment is applicable to eczema, herpes, pemphigus, impetigo, ecthyma, and rupia. In the last case the ulcers, which appear on the disappearance of the crusts, should be treated as isolated sores with water dressing.

The water treatment of these diseases, now described, was first recommended by me in 1849, and will be found detailed in my Clinical Lectures, 5th edit., pp. 837, 839. I then and still cause to be dissolved in the fluid a small amount of alkali— $\frac{3}{4}$ ss. of sodæ carb. to a pint of fluid—which renders it emollient and more serviceable in dissolving the purulent crusts. The tendency which so strongly prevails to attribute therapeutic action to drugs rather than to hygienic means, caused many to attribute the good results to the influence of the alkali, and by some it has been called the treatment of eruptions by alkaline washes. But I have been satisfied from the first it is neither the alkali, nor as a wash, that it is serviceable, but that simple water, if only *constantly* applied, is all that is truly necessary.

Long experience in the treatment of skin diseases, both in hospital and private practice, has now convinced me that the really active agents in the treatment of those referred to are simply oil and water, if properly applied in appropriate cases. I have also observed that while watery applications have no effect on the dry eruptions, so greasy substances seldom fail to

exasperate such as have fluid discharges. A correct diagnosis, therefore, is of the utmost importance. I have frequently had occasion to see in the hands of others much time and trouble lost in applying water to a scaly eruption, and an acute eczema rendered most painful and intense by having pitch or other irritating ointments applied, under the mistaken idea that it was psoriasis. There are certain chronic conditions, however, of originally moist eruptions, where dry induration of the skin is caused, and then unguents are serviceable. To give a description of the forms and stages in which sometimes one or both may be useful is impossible. Nothing but a lengthened experience of the treatment and familiarity with the appearances of cutaneous diseases under varied conditions will suffice for this. But I have no hesitation in recommending the views and practice now described to my medical brethren, not only as a simple but as the most efficacious method of removing the troublesome disorders referred to.

THE SALT AND COMPRESSED AIR CURES OF REICHENHALL.

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REICHENHALL is a watering-place in the south-east corner of Bavaria, which, although much frequented by invalids from all parts of North Germany, and especially from the western provinces, is little known in this country. Owing to its sheltered position, its mean temperature throughout the year is somewhat higher than that of other places in the same latitude and at the same height above the sea-level. Thus its climate is almost identical with that of Lausanne, both as regards the mean temperature throughout the year and the relative temperatures of the seasons. The daily variations of temperature are remarkably small: thus in winter, the mean of the daily maxima, as read at the Government Salt Works, is $40\cdot5^{\circ}$ F., while that of the minima is $34\cdot9^{\circ}$ F.: in summer the mean of the maxima is $68\cdot2^{\circ}$ F., that of the minima $53\cdot8^{\circ}$ F. In summer the comparative coolness of the days and the mildness of the nights are especially noteworthy. This is probably due to the cloudiness of the atmosphere, which is alike unfavourable to the cooling of the air by radiation during the night, and to the heating of the surface by the sun's rays during the day. The mean humidity during the year is $79\cdot5$ per cent., being greatest in winter ($83\cdot2$ per cent.), least in spring. During the summer months the valley is entirely free from fogs.

Reichenhall is an excellent centre for the exploration of the magnificent Alpine ranges by which it is surrounded. Berchtesgaden, the Königssee, and the Watzmann are within an easy walk or drive. From the Zwieselalp, a shoulder of the

Staufen, which can be climbed in three or four hours, a panoramic view is obtained comparable to that from the Rigi, while in every direction those who enjoy the combination of the *lieblich* with the *grossartig* in nature will find endless pleasure in exploring the charming valleys in the immediate neighbourhood. The pleasantest and brightest month in Reichenhall is May; for although there is much more sunshine than later in the season, yet it is said that the heat is not oppressive. June, July, and August are rainy, and therefore bad months for those who want to make excursions, however welcome the mild warm weather may be to the invalid. For mountain climbing, the best months are September and October.¹

The so-called "cures" for which patients resort to Reichenhall are various. I content myself with barely enumerating them and explaining their meaning.

Reichenhall owes its existence as a watering-place to its salt-springs, one of which, the Edelquelle, is the strongest in Europe. It contains more than $23\frac{1}{2}$ per cent. of salt, and has a temperature of 57° F. The baths are of various kinds—ordinary warm or tepid baths, douche and vapour baths, and so-called "Wellen sprudel bäder," in which last form the water is forced upwards under pressure into the bath, so as to imitate the effect produced in sea-bathing by the striking of the waves against the body. A "cure" lasts four or six weeks, and comprises from twenty to forty baths, in which the salt-water is sometimes used pure, sometimes mixed either with mother-liquor (which resembles the mother-liquor of Kreuznach), or with the extract of the dwarf Alpine pine, the latter mixture being specially recommended in cases of rheumatic gout. The temperature, concentration, duration, and number of the baths are under strict medical supervision. Another mode in which the salt-water is used is that of inhalation, of which two forms are employed. One plan consists in allowing the patient to sit or walk up and down in the immediate neighbourhood

¹ The Reichenhall season lasts from May to September. For English visitors it is an immense recommendation to the place that it is under the medical superintendence of Dr. von Liebig, who, in addition to his distinguished qualifications as a practical physician and as a man of science, has become familiar by residence in England with English manners and modes of life.

of the so-called *Gradirhäuser*. These erections, which form striking objects in approaching the town, may be described as enormous hedges, forty or fifty feet high, composed of bundles of twigs arranged horizontally, in such a manner that the surface of the wall is formed by their projecting ends. Their purpose is to afford a large evaporating surface for the concentration of the weaker kinds of saline water—those containing only a few percentages of salt. The water is conveyed by pipes from the springs to the top of the graduation-hedges, whence it is allowed to trickle slowly over the bundles of twigs into reservoirs. By this process the liquid is brought up to a strength of about 20 per cent., and is then ready to be conveyed into the vats, where the further process of evaporation is accomplished with the aid of heat. The degree in which the air on the lee side of the graduation-hedges is impregnated with salt is surprising. It has been accurately determined by analysis, and has been found to vary at ordinary temperatures from 0.028 grains to 0.052 grains in a litre, or from 0.054 grains to 0.123 grains in a cubic foot, so that the air is considerably richer in suspended saline particles than ordinary sea-air. The second method consists in impregnating the air of a room in which the patient is allowed to sit for a certain number of hours daily, by means of the process of pulverization. For this purpose the liquid is forced by steam power through an iron pipe terminating in a number of minute apertures, from which it issues under a pressure of four atmospheres, in fine jets. Opposite each jet, at a distance of four inches, is a metal ball, by which the stream is converted into invisible spray. The tube stands upright in the middle of the inhaling room, like a post, with the jets and pulverizing balls arranged round the top. The air of the room becomes impregnated with moisture and salt, in a degree proportionate to the distance from the pulverizers. Near the post it contains from twenty to forty milligrammes of salt in a litre of air; in the corners of the room not more than four or five. The humidity of the air is far below saturation: it does not exceed 86 per cent. From the above facts, derived from the analysis of Professor Vogel, it is calculated by Dr. von Liebig that the quantity of salt actually taken into the respiratory apparatus in an hour is about ten grains in the neighbourhood of the graduation-

hedges, and about twelve grains at a moderate distance from the posts in the inhaling-room. This being the case, there seems no good reason for subjecting patients to the expense and confinement of the inhalation room, which, although it is well lighted and ventilated, and looks out pleasantly on a charming garden, would be found by most invalids even more tiresome than walking up and down in the open air, and listening to the trickling of the salt-water on the evaporating twigs.

It is generally admitted that in ordinary breathing the inhaled salt does not get further than the chink of the glottis. If, however, one opens one's mouth wide and breathes vigorously, it is easy to convince oneself from the smarting pain felt at the sternal notch and upwards that the tracheal mucous membrane has been reached. Professor Vogel found that, after breathing in this way for some time, he suffered from disposition to cough, and feverishness, with acceleration of the pulse in the evening.

The beneficial action of the various kinds of salt-water baths above referred to is undoubtedly, for the most part, referable to their experimentally ascertained effect in increasing the tendency to molecular disintegration, *i.e.* to oxidation throughout the body. In moderately healthy persons it manifests itself in increased appetite, and sound and refreshing sleep, by which the unwonted weariness which is usually experienced towards evening is completely removed. In chronic catarrhal affection of the digestive and respiratory mucous membranes, patients seem to derive considerable benefit; nor is it difficult to believe that any of those morbid processes which depend on the uncontrolled overgrowth of temporary histological elements, provided that they are not accompanied by pyrexia, may be checked or arrested. As regards the special therapeutical utility of inhalation, the only ascertained fact seems to be that in certain cases of faucial and laryngeal catarrh and hyperæmia of long duration, particularly those which are associated with dyspepsia, a marked and rapid improvement takes place during the progress of the "cure." It is scarcely necessary to add that no such improvement is to be expected in those laryngeal affections which depend on tuberculosis, in which the use either of the baths or inhalations would probably be found to be injurious.

The principal purpose which I have in view in this communi-

cation is not, however, to illustrate the use of the salt cure, but to draw attention to a new therapeutical appliance, which promises to be of much greater importance and utility. I refer to the compressed air-chambers which have been lately constructed at the Pharmaceutical Establishment of the brothers Mack, to whose enterprise and ingenuity the pulverization apparatus is also due. From the numerous researches which have appeared in Germany on the physiological effect of subjecting patients to an air-pressure considerably greater than that of the atmosphere, it appears that compressed air exercises a very marked sedative influence both on the circulation and respiration. The pulse is retarded, while the respiration not only becomes less frequent, but appears to be performed with diminished effort; and it is remarkable that these effects, although they are most obvious during the time that the patient is under pressure, do not entirely cease, when the normal conditions are restored.

The apparatus, as now improved under the scientific supervision of Dr. von Liebig, is of the most complete and perfect construction. It consists of three air-tight chambers, all of which open into the central antechamber. Each chamber is eight feet high and seven feet wide, so that three persons can sit with comfort. The pressure employed is equal to one and a half atmosphere, *i.e.* about forty-five inches of mercury, or about twenty-two pounds on every square inch of surface. The patient remains in the chamber about an hour and forty minutes, of which time about forty minutes is occupied in gradually increasing and diminishing the pressure, of which processes the latter demands the greatest caution on the part of the engineer. The air-pump by which the air is forced into the chambers is worked by a steam-engine under the immediate direction of Mr. Joseph Mack, to whose obliging courtesy in showing me the mechanical details of his apparatus I am much indebted. To those who are not conversant with the phenomena which attend rapid changes of density of elastic fluids, the problem appears simple enough. In practical reality it is attended with perplexing difficulties. These arise principally from the absolute necessity which exists of maintaining a moderately equable temperature, and of preventing the air from becoming saturated with moisture; for a failure in either of these particulars would certainly be detrimental. With a view to

the regulation of the temperature of the air, the pump is connected with the air-chambers by two distinct pipes, along either of which the current of air can be directed at the will of the operator. One of these pipes passes through a chamber heated by waste steam from the boiler, while the other is exposed to the temperature of the atmosphere. In determining the rate and proportion in which cold and hot air are injected or discharged from the chambers, the operator is entirely directed by instrumental observations, which are made and recorded every five minutes during the whole period that the patients remain under pressure. The instruments employed are (1) a dry and wet bulb thermometer (psychrometer), which is placed inside the chamber and read through a glass window from outside, and (2) a mercurial manometer, the closed limb of which communicates by a tube with the chamber. At the beginning of the sitting, while the pressure is gradually rising, the temperature of the air tends to increase in exact proportion to the mechanical work converted into heat in the act of compression. For a similar reason, as the pressure diminishes at the end of the sitting, the air tends to become cooler, and consequently to become saturated with moisture. To guard against this contingency it is necessary to watch the psychrometer with the utmost care; for the moment that the readings of the two thermometers coincide, a cloud of mist appears in the chamber, which is most disagreeable to the patients, and would probably materially interfere with the beneficial results.

As has been already stated, the principal physiological effect of increased pressure is to retard the action of the heart. For the purpose of ascertaining the cause and significance of this diminution of frequency, as well as its relation to the other physical conditions of the circulation, a large series of observations have been made by Dr. von Vivenot, which, although not made with those precautions which we now regard as necessary in order to render the tracings available for the direct determination of changes of arterial pressure, were so carefully verified in other respects that they afford very valuable material for inference. Dr. von Vivenot's observations were made partly on healthy persons, partly on persons affected with chronic bron-

¹ Virchow's Archiv, xxxiv. p. 515.

chitis and emphysema. The effects observed in every instance may be summed up in a few words—diminished amplitude of the oscillations of the lever, hence diminished expansive movement of the arterial wall; increased obliquity of the ascending limb, hence more gradual filling out of the artery and postponement of the acme or maximum of expansion. Thus as Von Vivenot rightly observes, the pulse, besides being retarded, assumes the character of the *pulsus lentus*—that form, in short, which characterises *increased arterial tension*. By way of counter-experiment Von Vivenot has recorded a number of equally important observations on persons under *diminished* pressure, not however with the aid of the sphygmograph. He found that in a chamber in which the density of the air was reduced from thirty to twenty inches, the circulation and respiration were affected even more markedly than in compressed air. While in five individuals simultaneously experimented upon (including the author) the mean frequency of the heart's action increased from 72 to 86, the radial pulse became manifestly more voluminous, and the extent of its expansive movements of the artery became greater. Along with these changes all experienced a sensation of increased warmth of the skin, notwithstanding the considerable cooling of the air in the chamber consequent on the diminution of tension. Smarting of the conjunctivæ, with vascular injection, vertigo, confusion of thought, and neuralgic pains in various situations, were other symptoms noted.

Other results, strikingly illustrative of those already referred to, were obtained by Von Vivenot by the direct observation of the condition of the blood-vessels. Thus, observations with the aid of the ophthalmoscope showed that the blood-vessels of the retina became more slender and contained less blood as the pressure increased; again, in a white rabbit it was observed that the ear became pale, and that vessels which before were distinct became absolutely invisible; corresponding changes were observed in the colour of the iris and pupil.

From all of these facts it is to be inferred that the fundamental physiological effect of compressed air consists in its altering the distribution of the blood, *i.e.* diminishing the quantity or volume of blood contained in the veins and auricles, and consequently increasing the quantity contained in the ven-

tricles and arteries. Its secondary effect on the heart admits of complete explanation on the principles which I have developed in my Croonian Lecture.¹ The effect of diminished fulness of the venous system is to retard the filling of the ventricles during their period of relaxation, and consequently to lengthen the diastolic interval, and diminish the frequency of the pulse. For as the time occupied by the heart in contraction is subject to little variation in the same individual, the interval between successive contractions obviously depends on the duration of the diastolic pause.

The bearing of these considerations on the therapeutical action of compressed air as a means of relieving dyspnœa, is not difficult to explain. The cases in which it is useful are precisely those in which the dyspnœa is dependent on dilatation of the right side of the heart, fulness of the venous system, impairment of the pulmonary circulation, and consequent emptiness of the arteries—a state of things which exists in a vast number of cases of chronic bronchitis with emphysema. In other words, the dyspnœa which it relieves is that which arises when the feebleness of the contraction of the left ventricle and the diminution of arterial tension are due, not to defective vigour of the heart itself, but to interference with its supply of blood *a tergo*. In all such cases immediate relief may be confidently expected by an agency which tends to facilitate the filling of the left ventricle, so that at the end of each period of relaxation, the mass of blood which it contains is sufficiently large for it to grasp vigorously in its systole.

This hasty and imperfect sketch I trust may be sufficient to awaken interest on the subject. The facts and considerations to which I have adverted have led me to regard the compressed-air chamber as an important remedial agent. It belongs to a class of remedies which, we may hope, will become more and more numerous—remedies which act not by introducing into the living organism substances foreign to its constitution, the extent of action of which we are often unable to estimate as to control, but by directly counteracting the physiological disturbance ascertained to exist, thus adjusting the disturbed equilibrium of

¹ On the Influence exercised by the Movements of Respiration on the Circulation of the Blood. Phil. Transactions, 1867, p. 571.

function, not by depressing or weakening those functions which are natural, so as to bring them into harmony with those which are diseased (which is the principle on which much of our treatment is based), but rather by directly restoring and strengthening those which are impaired.

Admitting for a moment that the physiological action of increased atmospheric pressure is such as I have represented it to be, and that it can be so controlled as to be effectual in the management of disease, its superiority to the methods now in use can scarcely be doubted. The morbid condition which it is calculated to counteract, is the immediate cause of death in a large number of cases—all those cases in which the mode of death is characterised by a gradually increasing dropsy, arising from venous congestion independently of organic disease of the kidneys.

In such cases experience teaches us that diuretics and purgatives are usually the most effectual means at our disposal, yet how unsatisfactory such a mode of treatment is in its principle! We are watching the gradual though distant approach of death—the heart is becoming weaker—primarily from want of blood to work with, secondarily from want of blood for its own nutrition. The arteries are becoming empty, the pulse quicker, more compressible and more jerking, the veins fuller, the connective tissues more and more hopelessly soaked with serum. The immediate source of danger is, in a great measure, mechanical. The venous congestion must be relieved, the heart invigorated, to accomplish which we have to tease the kidneys with calomel and digitalis, and the bowels with cream of tartar and jalap. The danger is averted, and the patient recovers; but in the process of cure there is much disintegration of living tissue, much irreparable waste of the vital energy which was stored up in it. If there is a reasonable hope that by substituting a mechanical for a chemical agency we may be enabled to get the good without the evil, the experiment certainly ought to be made, not of course by sending patients to Reichenhall or Wiesbaden, but by having the apparatus in our London hospitals. Experience has already, I think, shown its efficacy for the relief of suffering. I do not think that it is too much to hope that it may also be found available for the saving of life.

ON THE INTERCEPTION OF THE EPILEPTIC AURA BY BLISTERING.

BY THOMAS BUZZARD, M.D.,

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It is well known that where a very marked local sensation precedes a fit of epilepsy, a diminution of the number of attacks, and even sometimes a cure, may result from treatment directed to the apparent source of irritation. In Dr. Brown-Séquard's work on Epilepsy there is ample reference to cases of epilepsy successfully treated by the application of a ligature around a limb or finger; section of a nerve; amputation of a limb; extirpation of a tumour, foreign body, or tooth; or by the expulsion of worms or calculi. The use of a ligature, especially, is very familiar to many epileptics themselves, who are constantly able to check a fit by tightening a strap carried upon the limb in which the precursory aura is felt. Cauterization or blistering of the skin at the starting-point of an aura has also apparently been practised with success, although there is much difference of opinion on the part of authorities as to the value of this treatment.

In the course of recent experiments I have found some curious results follow the application of blisters, and especially of circular blistering, upon limbs which were the channels of very marked aura epileptica, and I am induced to describe them briefly here because they may possibly furnish a useful hint for treatment in appropriate cases.

Case 1.—In January last, Alfred M——, a boy 15 years old, was brought to me at the hospital. He had received a kick

on the head seven years previously, followed in a few months by epileptic fits, which had continued ever since. At first he used only to feel a tickling sensation in the left arm once or twice a day. This went on for three or four months, and then one day the tickling was followed by insensibility and convulsion, and since then this has always happened. At the time of his application he had had from five to ten fits daily for the four months preceding, without any intermission whatever. He indicated a spot about the centre of the left biceps muscle as the point whence the fit always started. A strip of blister was at once applied just above this spot, and was repeated once a week. No medicine was given. For a month after the rising of the first blister he was absolutely free from fits, and then one day he got a knock upon the arm, and a fit took place. Ten days afterwards, there was another, and then gradually the frequency was increased, so that he had one every two or three days, not now, however, preceded by any aura. At this time I gave him 15 grs. of K Br. every night at first, and then the same dose twice daily, but without effect; the fits became still more numerous and severe. On June 1st, the aura had returned, and then a circular blister, an inch wide, was made around the upper part of the left arm, without, however, much effect this time upon the number of attacks. He now complained, too, for the first time, of tickling about the middle of the left *leg*, before each fit, the aura in the arm having disappeared. The blistering was discontinued, and 30 grains of bromide of ammonium administered every night, under which treatment he has had very few attacks.

Case 2.—Susan S——, æt. 10, was admitted on March 17th, 1868, having had fits for eight months. She had had sometimes from thirty to forty daily, and during the last month they had been constant, to the number of four or five in the day, and as many at night. Each fit was preceded, for about five minutes, by a tickling in the middle of the left biceps, the same situation as in the last case. In her case, too, the tickling alone had occurred daily for six weeks, and then had merged into convulsion and insensibility. For a week after her admission nothing was done, and she continued to have fits day and night. Then a blister was applied, half

encircling the upper part of the left arm. No effect following this application, K Br. in 10- and then 20-grain doses was given to her, but with no diminution in the number or severity of the fits. On April 14th, I painted a ring of blistering fluid, an inch wide, so as to encircle the left upper arm, above the seat of the tickling. Before the blister rose she had three fits; afterwards none till the 18th, and then four very slight seizures. Since that time (more than five months ago) she has not had a single attack, nor has she felt the tickling. No other treatment has been adopted.

Case 3.—Harriet M——, æt. 14, applied last October. She had had three or four fits daily for two years. In each instance the fit was preceded by a sensation of numbness in the left wrist. Under the use of bromide of ammonium the fits became much diminished, but in May, this year, they again increased in number and severity. A ring of blister was made around the left fore-arm, two inches above the wrist, by painting blistering liquid upon the skin. During the next fortnight she had three fits. The seat of aura was now, however, changed. It was the *right* wrist which now became numb before the attack, and not the left.

Case 4.—Jane B——, æt. 27. Epileptic for thirteen years; fits occurring two or three times daily, or sometimes holding off for a week. The fit invariably begins with a cramp in the right hand or right leg, and an attack has often been checked by tight pressure upon the right wrist. Under K Br. the fits became greatly diminished, and after some months they ceased altogether for a period of several weeks. During this time, however, she frequently had threatenings of attacks, which were always stopped by a friend pinching the right wrist, and forcibly flexing the hand. Occasionally, a tape would be tied tightly around the upper arm, and this would suffice to prevent the attack. So she went on for six months. Then a ring, one inch wide, was painted with blistering liquid, around the right fore-arm, two inches above the wrist, and drugs were suspended. The fits shortly afterwards recurred, and have since continued at occasional intervals. Now, however, it is not the *right* hand which is alone the seat of the aura, but *both hands* are cramped before a fit.

In some other cases of well-defined aura in which the blistering ring was applied, no remarkable effects followed, and I need not, therefore, dwell upon them. It is worth noting, perhaps, that in no case where encircling blister was applied, did the patient complain much of the pain occasioned by it. It has, I believe, sometimes been found that a blister of this shape, by involving probably all the branches of cutaneous nerves, has caused very intense suffering, so that its application requires some caution. A very narrow ring is all that is necessary, and this is not likely to lead to harm.

The instances I have adduced above seem to me worth a brief record,—one on account of the happy result of the treatment applied, and the other three because of the very curious influence which was apparently exerted by the blisters upon the site of the epileptic aura, a point to which I do not remember to have seen reference made by writers upon the subject.

ON THE LOCAL APPLICATION OF CARBOLIC ACID IN UTERINE DISEASE.

BY D. LLOYD ROBERTS, M.D., M.R.C.P.,

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To the readers of this journal it is scarcely necessary to state that carbolic or phenic acid was extracted from coal tar by Laurent twenty years ago, but in a very impure state, and contaminated with sulphuretted compounds; and that to the indefatigable exertions of Professor Crace Calvert, F.R.S., we are indebted for the production of the acid in a pure state, being now completely deprived of all disagreeable odour and tarry flavour. On this occasion I wish to draw attention to the use of carbolic acid in the following diseases of the uterus:—

1. *Ulceration of the Os and Cervix Uteri, with or without Hypertrophy.*—With the exception of the phagedenic, specific, and, perhaps, the varicose ulcer of the uterus, I think there is but one species of ulceration which passes into different states, according to its chronicity or other circumstances. This ulceration occupies ordinarily the posterior lip (often, however, attacking both lips equally), penetrates into the tissue of the cervix, and dips from the exterior into the interior. On examination with the finger, we soon perceive that the engorgement is greatest at the part whence the ulceration originated. Questioned as to the origin and duration of the disease, the patients almost invariably date the commencement of their sufferings from a labour or miscarriage, adding also that the lochial discharge was of a hot and irritating character, and had continued, more or less, ever since. Excluding cases occasionally met with, in which the

ulceration is both deep-seated and intractable, and which require the application of more powerful caustics, I have found carbolic acid an application sufficiently powerful not only to heal the breach of surface, but to remove the hypertrophy of the uterus, so frequently arising from inflammation and ulceration of that organ. The dorsal, lumbar, and hypogastric pains, derangement of the menstrual function, sense of weight in the perineum, irritability of bladder, and other constitutional symptoms, speedily disappear. It is, moreover, remarkable how quickly a few applications of the acid will, on the one hand, control and ultimately cure, in young child-bearing women, those severe cases of flooding which are due to ulcerative disease of the os uteri; and, on the other hand, those cases of flooding occurring at the climacteric period, which, arising from the same cause, are often vaguely attributed to "change of life."

2. *Chronic Inflammation of the Uterus and Cervix, with Excoriation.*—It is a fact about which very little difference of opinion exists, that chronic inflammation of the uterus is a very frequent cause of numerous abortions and miscarriages. If to the physiological state of congestion or hyperæmia accompanying the development of the uterine texture during pregnancy, inflammation is superadded, it is obvious that such a complication is but little favourable to the retention of the ovum; and I have found the use of the acid locally in these cases productive of the most beneficial results, the circumstance of the existence of pregnancy offering no barrier to its use.

3. *Cases of Follicular Disease of the Cervical Canal.*—When the hypertrophied follicles encroach upon the calibre of the canal, and plug up the aperture by the undue secretion of mucus or pus, a condition which so frequently constitutes a temporary cause of sterility, the application of the acid is *especially* indicated. It possesses an advantage over the nitrate of silver, for that salt is so readily decomposed by the fluid secreted from the ulcerating surface as to prevent its contact with the diseased follicular glands. Moreover, carbolic acid is exempt from the serious objection which doubtless follows, sometimes, the use of the stronger caustics, that they tend to contract the calibre of the cervical canal.

Method of Application.—For its application in ulcerative

disease, the only requisites are a speculum, uterine forceps, and lint. The surface of the ulcer, first wiped clean with lint, is then touched with another piece of lint saturated with the acid, previously liquefied by the addition of a little water (a few drops to 3 or 4 oz. of acid). The surface of the sore may be gently dried with another piece of lint, which will serve also to absorb any superfluous acid that may have drained into the speculum. Care should be taken not to touch the vaginal mucous membrane with the acid, as it not only excoriates but causes some pain for several hours. For the introduction of the acid into the cervical canal I have used a camel's-hair pencil, or, when this could not be introduced, a gum elastic catheter or bougie dipped into the acid, the canal having been first cleansed by the injection of water, or by other means, such as the introduction of a pledget of lint, when the os uteri is sufficiently open for the purpose. In cases of ulceration occurring in child-bearing women it is singular to what an extent the cervical canal becomes patent. A No. 14 bougie can often be passed into it with ease. The application of the acid may be repeated once or twice a week, according to circumstances. In addition, I have commonly used a lotion composed of ℥j to ℥ij of the acid, and ℥j of glycerine, to Oj of water, which acts both as a healer and a disinfectant.

The advantages which carbolic acid appears to me to possess in cases of uterine disease are the following:—

As a *caustic* it is especially useful, occupying as it does in escharotic power a position intermediate between the milder nitrate of silver and the more powerful corrosive caustics, potassa fusa, the mineral acids, acid nitrate of mercury, &c. More energetic than the first-named salt, it is at the same time free from the danger to neighbouring structures which attend the use of the more potent caustics. Although its action does not penetrate below the diseased surface, it possesses in equal degree with the stronger caustics the property of changing the vitality of the tissues, and produces rapid cicatrization, dissipates the inflammation and hypertrophy, and relieves pain.

By its disinfectant action it destroys the offensive odour of purulent and other discharges, and acts beneficially upon the unhealthy, lax, and discharging vaginal mucous membrane.

Reviews.

Recherches chimiques et physiologiques sur l'Erythroxylum Coca du Pérou et la Cocaïne. Par THOMAS MORÉNO Y MAIZ, Docteur en Médecine, &c. Paris : Louis Leclerc, 1868. 8vo. pp. 90.

(*Chemical and Physiological Researches on Peruvian Coca and Cocaïne.* By T. MORÉNO Y MAIZ. Paris, 1868.)

FOR some years past a great deal of interest has been excited on the Continent, though not much in England, by the investigation of the physiological properties of the Peruvian coca-plant, a shrub whose leaves are certainly as remarkable in their effects, and as nationally important to the Peruvians and one or two nations, their immediate neighbours, as opium is to the Chinese or to the Turks. It is strange, indeed, that this practical interest in coca had not long ago been evinced by European physicians; for its popular use as a narcotic in Peru has been reported by an unbroken chain of travellers for quite 300 years; but, no doubt, the difficulty of conveying the leaves in an uninjured state through a long sea-voyage was a formidable obstacle in the days when there were only sailing vessels. However, during the last ten years much has been done. The researches of Wöhler and Niemann on the chemistry, and of Paolo Mantegazza, Reis, Rossier, Demarle, and others on the physiological action, of coca have done a good deal towards rescuing our knowledge of this remarkable agent from its previous semi-mythic condition. The treatise which we now notice is a meritorious attempt to carry the matter a step further, and the author possesses many qualifications for his task. M. Moréno is a native, we believe, of Peru; at any rate, he long resided there, and is perfectly well acquainted with such local information about coca as can be had. He is also, evidently, a good botanist and working chemist, and he has made himself familiar with all that has been done as regards the physiological action of the new remedy.

The point in the action of coca which has always arrested the attention of travellers in Peru is the extraordinary sustaining power which seems to be communicated to those who chew the leaves. An Indian who can provide himself with a copious

supply of the leaves (which he rolls into a ball in his mouth, placing a Llipta or mass of alkaline salts inside it, which probably helps to dissolve the active principles,) will perform the most prolonged and laborious tasks without experiencing the necessity for food or sleep; although (according to Weddell) at the end of his fast he will eat like a famished wolf. Whether this last fact be true or not, it does not alter the extraordinary character of the prolonged abstinence from food and sleep under hard labour, which is now testified to by such a mass of respectable eye-witnesses of the fact as to be no longer disputable. It is, moreover, confirmed by several physiologists who have experimented on themselves in Europe, and Dr. Moréno, although he makes a rather unnecessary protest against coca being considered an aliment in the common sense of the word, gives strong testimony to its remarkable power to enable the student to pursue his labours during a whole night without feeling any after-fatigue, and without needing any rest before the labours of the next day. In fact, it is very evident that in coca we possess an uncommonly powerful nervous stimulant. As might be expected, when taken in excessive doses, it is a narcotic poison; and a considerable part of Dr. Moréno's work is taken up with the analysis of these toxic actions; on this subject it is enough to say, that he seems to prove—(1) that in very large poisonous doses it produces tetanic convulsions resembling those of strychnia; (2) that in much smaller doses it causes a remarkable hyperæsthesia, dilatation of the pupils, and diminution of movement, apparently from loss of co-ordination; (3) that in doses intermediate between these two ranges it produces a gradual diminution, and ultimately an abolition, of sensation, without motility ever being completely lost. Various preparations of coca can be used; and as the highly effective but clumsy native method of chewing the leaves with the alkaline Llipta cannot, of course, be adopted for medical or experimental purposes, it is necessary to use an infusion or decoction (the latter is bad), an extract made either with water or with alcohol, a tincture or wine; or pastilles, made with the powder of the leaves and a certain quantity of lime (to imitate the alkaline Llipta). Or, finally, we may employ a salt of the alkaloid, cocaïne, which, originally discovered by Niemann, is difficult of preparation by the process used by that chemist, but would appear to be sufficiently easily made by a new process invented and described by our author. Dr. Moréno employs the acetate of cocaïne, which is very soluble and crystallizes with ease.

As regards the non-poisonous *stimulant* action of coca, which really is what alone should interest the physician, it appears that the infusion in small dose produces effects very much like those of ordinary tea; and taken in larger quantity it produces agita-

tion and an inability to sleep. These results were obtained with *hot* infusions; but M. Moréno distrusts the result, as confused by the intervention of *heat* as a physiological agent; he therefore experimented with cold infusions. He tested the effects upon circulation with the aid of the sphygmograph, and satisfied himself that arterial tension is very considerably heightened; but we must honestly confess that on looking at the traces which M. Moréno gives, we experience considerable doubts whether they have been taken with a full knowledge of all the fallacies which lie in wait for observers with the sphygmograph who are not extremely familiar with its practical application. Nevertheless, it appears likely, from other considerations, that this really is a property of coca; and if that be established as a fact, together with the singular power of the drug to enable the taker to dispense with sleep for a considerable stretch of time, it is plain that we shall have ready to our hand a remedy of real and very high value. At present, doubtless, the question of *cost* is a serious one; but on that subject we hope to be able to give our readers specific information before long. The point seems to be to produce a good and not too expensive tincture; and also to manufacture acetate of cocaïne at something like a feasible price.

On Digitalis: with some Observations on the Urine. By T. L. BRUNTON, B.Sc., M.B., &c. London: Churchill. Edinburgh: Maclachlan. 8vo. pp. 132. 1868.

THIS book is an important addition to the already immensely numerous researches on the physiological and therapeutical effects of digitalis. As a specimen of self-sacrifice and painstaking labour it deserves much praise, for any one that knows practically what experimentation is will recognise the fact that the researches detailed in the appendix, especially those made with the hæmadynamometer, in order to ascertain the effects of digitaline upon arterial pressure, must have cost much fatigue. And as they seem to have been made with all the necessary precautions we may accept the results deduced from them. While we are mentioning Mr. Brunton's experiments, however, we must touch upon one matter not so deserving of commendation, and which it is necessary to notice lest readers should be misled. There are some sphygmographic tracings given, which were obtained from the radial artery of a patient who accidentally became poisoned by repeated and too large doses of digitalis; and these traces, though some of the events which they appear to record are doubtless genuine, fills us with mistrust. They give the idea of a sphygmographer who is still in the stage of preliminary education; and we must say that this idea is confirmed in our mind by the table of specimen tracings from his

own pulse which Mr. Brunton gives at the end of his book. We hope we may be excused for speaking in this decidedly unfavourable tone of what to many may seem an unimportant matter; for the truth is, that sphygmographic observations by partially skilled hands are in danger of becoming a very serious mischief, as leading to all manner of fallacious conclusions. In all friendship to Mr. Brunton we would beg him to immediately have his instrument modified with the pad and elastic straps of Mr. Berkeley Hill, and the apparatus for exact graduation of spring-pressure. From long and mortifying experience we can assure him that, until he has taken these precautions, and has rendered himself thoroughly familiar with the practical working of the improved apparatus, it is positively unsafe to form any conclusions as to the physiological or therapeutic action of drugs upon the pulse. Another subject of mistrust with us is the fact, that our author seems committed, if we understand him rightly, to what appears to us to be distinctly the wrong physical theory of the pulse. If there be one thing, as it seems to us, that the sphygmograph, with all its defects, has carried into the region of demonstration, it is the superiority of Weber's wave theory of the pulse to the old conception of it as an *unda* or tide. Upon this question M. Marey himself has always appeared to us to be by no means sound; and it seems evident that Mr. Brunton either does not believe, or has not fully grasped, the conception of the arterial pulse which the wave theory implies. He speaks with a material literalness of the comparative effect of a large or small "wave" (he should say "tide") of blood passing from the heart into the arterial system, which seems to prove that he has not learned to think of the movements of the radial artery as in fact a series of waves propagated, with immense rapidity, along the blood-column. We beg his pardon, if we are mistaken as to his meaning; but, if we are right, then we recommend him to study the extremely interesting experiments of Dr. Burdon Sanderson upon the wave movements of fluids in tubes, and the application which he makes of them to the phenomena of the pulse; for whether the exact theory of Sanderson be adopted or no, we think it cannot be disputed that his experiments have given the *coup de grâce* to the tidal theory of the pulse.

We should not have dwelt so long on what may appear as unwarranted digression into the region of pure physiology, were it not that the sphygmograph, and the kind of information it gives respecting the circulation, are likely in future to play a very decided part in the determination of the therapeutic action of drugs, as our readers may gather, *inter alia*, from the able paper of M. Personne on acetate of methylamine. As regards

the therapeutical action of digitalis, Mr. Brunton assumes the following position : he believes that the drug both stimulates the action of the heart and increases the capillary resistance ; he therefore thinks that there is no danger of evil results from its use *so long as the heart-fibres are sound* ; but he warns us that, if there were *fatty weakening* of the heart-fibre, digitalis, by increasing capillary resistance, might oppose an obstacle to circulation which the feeble heart would be powerless to overcome. Mr. Brunton also specially recommends digitalis in nervous palpitations (30-minim doses of the tincture), and believes that it acts by inducing contraction of the capillaries, and thus raising arterial tension. (By the way, that phrase, "contraction of the capillaries," is at best a very loose and inaccurate expression, which a man of Mr. Brunton's calibre might be expected to abjure.) The other therapeutical observations as to particular diseases which our author makes are hardly more than a careful *resumé* of the opinions of others, which is useful, however. We observe that Mr. Brunton accepts the digitaline of Homozle and Quevenne as the true representative of the activities of the plant, and his opinion will probably do much to bring that substance into more general use.

On Consumption, and its Treatment by the Hypophosphites. By JOHN C. THOROWGOOD, M.D., London, Assistant Physician to City of London Hospital for Diseases of the Chest. Second edition. London : Churchill, 1868.

THIS modest pamphlet is calculated to make a good many people feel rather staggered, and rather ashamed of certain confident assertions which it has been considered the correct thing to make in medical circles, when the hypophosphites, and the notion of their possibly beneficial effect in phthisis has been mentioned. No doubt the original claims of Dr. Churchill on behalf of these drugs, as curers of consumption, was put forward in a manner so hasty and crude, and with such exaggerated pretention, as to produce an immediate repulsion and incredulity. It must be admitted, however, that very much of this was rectified in Mr. Churchill's second edition, published in 1864, and in particular the full details of so large a number of cases were recorded, that the mass of evidence presented assumed an importance which no candid critic could ignore. And now we have Dr. Thorowgood, a physician of very large experience as regards phthisis, and of a particularly candid mind, declaring that the results of trials of the hypophosphites, on a very large scale, are decidedly favourable, and that in a considerable number of cases they produce remarkable benefits.

We consider that the arguments hitherto used in this country, and the statistics adduced, to prove the inertness of these

remedies in phthisis, are simply worthless. We have no formed opinion on the matter. We simply *know*, from large personal experience, that the hypophosphites are most energetic agents in certain diseases of the nervous centres, and *suspect*, strongly, that in a very considerable group of cases of phthisis the morbid process takes its starting point from mischief in those very centres. We therefore, at least, are not at all surprised or flurried at Dr. Thorowgood's calm statement, as the result of his large experience, of his belief that phthisis does frequently so arise, and that the hypophosphites are a perfectly rational, as well as a practically successful, kind of remedy under such circumstances. We recommend this pamphlet to our readers' most serious attention. Close criticism it must and ought to have; and quite possibly its conclusions may be upset. But we are heartily tired of the bigotry with which the question has hitherto been treated; and, happening to be quite impartial ourselves, we give fair warning to any one who may have latent intentions of pooh-poohing the evidence here adduced, instead of answering it, that the execution of those intentions is likely to secure him a *mauvais quart d'heure* with the critical department of the *Practitioner*.

Diseases of the Womb. Uterine Catarrh frequently the Cause of Sterility. New Treatment by H. E. GANTILLON, M.D. London: Churchill. New York: Ballière. Savannah: G. C. Alcott & Co. Paris: Galignani. Philadelphia: Henry C. Lea. Baltimore: Kelly & Piet.

THE cool assurance of the man who could deliberately publish this treatise in six of the principal cities of the world at once is a moral spectacle of no common kind. The work is one of a class which deserves reprobation. Its title is pruriently and spasmodically quackish, and its contents are just like enough to real scientific work to be particularly mischievous to the ignorant women to whom, and not to his professional brethren, the author seems to address his remarks.

A Practical Treatise on Eczema, including Lichenous and Impetiginous Forms. By Dr. M'CALL ANDERSON. Second edition. London: Churchill.

ECZEMA, regarded as the type of a large class of skin affections, is a very fair subject for a comprehensive monograph, for it is a disease of many forms, and concerning whose treatment the opinions of dermatologists are much divided. A second edition of Dr. M'Call Anderson's book is therefore a very welcome addition to this branch of medical literature. With the first part of the work—dealing with questions of diagnoses, patho-

logy, &c.—we have nothing to do ; the second portion, devoted to therapeutics, deserves some analysis. The author classifies his treatment under the two heads of constitutional and local. There are some, indeed, who, following Hebra, are disposed to believe that local treatment alone is effective, the employment of constitutional measures being attended with little or no result. We are glad to find that Dr. Anderson is not of that school. He considers that the first step of the practitioner should be to make a careful examination of the internal organs, and to rectify, as far as possible, any deviation from the normal state. Purgatives he believes to be very useful, but they must be looked upon rather as adjuvants to other treatment. It may happen that during their use the eruption will disappear. But he feels confident that, as soon as purgation is arrested, the disease will re-establish itself as vigorously as ever. No special purgative is to be adopted: in some cases it will be advisable to give grey powder, with rhubarb and salicine or quinine; in others sulphate of magnesia, with some preparation of iron. Calomel may be given if hepatic fulness is complained of. Much less strongly does he urge the employment in drachm doses of the sulphur confection of the British Pharmacopœia. Indeed, on the whole, he disapproves of this preparation, for besides being less effectual than calomel, it is converted into sulphuretted hydrogen, which renders the secretions very offensive. The practical objection of inactivity may be sound, but we think the somewhat theoretical one, that sulphuretted hydrogen is formed, rests on a less reliable basis. This gas may doubtless be developed in the intestine, but is not its existence yet to be demonstrated in the secretions, say, of the skin or kidneys? The physician must in these cases be careful to ascertain the idiosyncrasies of patients. As an instance, the author says:—"Not long ago, I gave a couple of grains of calomel and three of grey powder to a little girl, which gave rise to the most profuse salivation, ulceration of the mouth, and swelling of the gums and sub-maxillary glands." Diuretics are often lauded as remedies in eczema; the author, however, has a poor opinion of them. He thinks that in those cases where the alkaline diuretics have been found useful, the effect has been due, not to any action on the kidney, but to the influence of the alkali in neutralizing some acidity of the system. It is very probable that the surmise is correct, but we must object to so inexact a mode of explaining away the influence of an alkali as that which refers its influence to so vague an action as that of "neutralizing excessive acidity of the system." Having, by means of purgatives, restored the normal condition of the digestive system—a process of restoration we are by no means prepared to accede to—Dr. Anderson states that the internal treatment now pursues one of two courses,

according as the patient is robust or badly nourished ; in fact, the old division into sthenic and asthenic. For the scrofulous and debilitated cod-liver oil and steel are the sheet-anchors ; the author has repeatedly cured cases of eczema by the systematic administration of cod-liver oil and iodide of iron alone, for a couple of months. He is such a firm believer in the oil, that in the case of infants he would rub it into the body two or three times a day. When there exists a marked repugnance to the oil, cream may be substituted. Dr. Anderson makes no allusion to the internal use of glycerine in those cases, though we believe this drug has been found of great service in phthisis. In those cases which appear in a good state of health what should be done ? On this point we are glad to find that the author has really little faith in the "sthenic" condition. On the contrary, he condemns general bleeding in the strongest terms, and, even at the risk of being charged with heresy, he disapproves of local blood-letting. Much more does he regard these cases as being associated with some digestive derangement, and therefore to be dealt with in accordance with this view. The diet must be carefully regulated, and the "pleasures of the table" studiously avoided. The therapeutical treatment is limited to the use of the arsenical, alkaline, and tarry preparations. Fowler's solution should be tried first, the usual precautions being attended to. The combination of this drug with either iodine or mercury he thinks of little value, those cases in which it has been found of service being probably syphilitic—a generalization of a very sweeping character, which reflects very unworthily on some good names, and which it would be impossible for us to indorse. Neither can we approve of the principle of ethics involved in Dr. Anderson's practice of administering arsenic without the patient's knowledge, through the assistance of "a private mark known to two or three apothecaries." Alkalis are not forgotten ; the author believing them to be of considerable service in those cases where there is a deposit of lithates in the urine, or when the habit of taking stimulants is much indulged in. The liquor potassæ is specially recommended in doses of twenty minims, largely diluted, three times a day. The sesquicarbonate of ammonia will also, says the author, be found highly beneficial. In all cases the dose must be gradually increased till the "medicine disagrees, or the eruption begins to fade." Next in order of merit comes a drug which has enjoyed little confidence of late years—tar. Dr. Anderson thinks that the internal administration of tar is followed by results of the most unexpected kind. He gives the tar in pills containing three to five drops, and administered thrice daily. In no case has it been found to interfere with the health, whilst, in almost every instance, it has brought about the diminu-

tion or removal of the eruption. As might be inferred from what has already been said, the author has no favourable opinion of sulphur springs. He admits that in certain gastric complications they have done good service, but he has no word of praise to say for them. With the exception of an allusion to *Hydrocotyle Asiatica*, which he has not employed, this concludes the author's observations on general treatment. We wish he had drawn his remarks to a close at this point, and had not gone on to speak of "alterative medicines." It puzzles us to think how any physician can employ an expression which is at once so unprecise, misleading, and suggestive of therapeutical ignorance as "alterative." Used in its special sense, it is absurd; in a general one it is applicable to every drug in the pharmacopœia.

Dr. Anderson's comments on the subject of local treatment are less satisfactory. He employs such a multitude of unguents and lotions, that one ceases to place much reliance on any of them. Sulphur applications he has little faith in. Tarry preparations have proved most useful in his hands. Camphor, chloroform, cyanide of potassium, water, and chloride of zinc he gives a qualified approval to. Potassa fusa he thinks an excellent application. Blisters and mercury are likewise considered. Carbolic acid is spoken of as useful, but as being inferior to tar. It seems to us that the author regards all these substances as having a specific action, for he says nothing as to the effect of simply excluding air from the eruption. In reference to this last point, too, we are a little surprised to find that no allusion is made to collodion, which, in the hands of some practitioners, has proved of great service in eczema and in other eruptions. On the whole, the therapeutical portion of this work is copious in reference to current methods of treatment, and while it treats with tolerable impartiality opinions to which the author is adverse, it embraces ample arguments in support of Dr. Anderson's own views. The book is well printed on luxuriously toned paper, and contains marginal notes, which cannot fail to be of help to the busy practitioner. The author has done his work creditably, and deserves our good opinion.

Notes on Epidemics for the Use of the Public. By F. E. ANSTIE, M.D., F.R.C.P. London: Hodder & Stoughton.

In its present form this book is a cheap issue of an essay which originally appeared in the *British Quarterly Review*. Its object is to explain clearly to the public the danger of epidemics, the mode of recognising them on their first appearance, and the best means of extinguishing them. It is a therapeutic work only in so far as it deals with the hygienic measures which should be used

in preventing the extension of infectious diseases. It treats generally of typhus, relapsing fever, cholera, diarrhoea, scarlet fever, diphtheria, measles, small-pox, whooping-cough, influenza, and yellow fever. The *raison d'être* of the book is to some extent illustrated in the following concluding passage: "It can never be too often repeated, that by far the most difficult and scientific portion of the medical man's task in the treatment of acute disease is the direction of hygienic measures, and, above all, the apportionment of the proper food, and the exact manner in which that food shall be taken; and that these are the means by the right employment of which the physician saves his patients in ninety-nine out of a hundred cases which recover from dangerous attacks of epidemic disease."

A Compendium of Practical Medicine and Morbid Anatomy. By WILLIAM DALE, M.D. London: Churchill.

DR. DALE has aimed at producing a work embracing the last doctrines of physic, and withal so condensed that the reader may obtain briefly the information he requires. The book is essentially addressed to students, and treats of the etiology, pathology, diagnosis, and treatment of disease. How far the author has succeeded in reference to the first three departments is not for us to decide. His exposition of modern therapeutics, however, is not quite what we could have desired. In point of fact, this compendium of Dr. Dale's is essentially of the old school, and the author's efforts to put a new patch here and there on the old garment have produced a *bizarre* but infelicitous result. The separation, for example, of blood-letting, galvanism, and diet from the chapter on therapeutics is a very questionable proceeding which savours of the old notion, that therapeutics means drugging. Then, again, the author's belief in a *vis medicatrix*, his explanation of the former success of blood-letting by the theory of waves of time, his omission of all allusion to the hypodermic method, his rejection of Pettenkofer's (Pettenhoffer he calls him) and Fick's views, because of "old established beliefs," his conviction of the elimination of *morbific* matters by blisters, and his adhesion to the nitrogenous and non-nitrogenous classification of diet, all compel us to place Dr. Dale far behind in the rank of teachers of therapeutics. His book may contain good sound practical advice—and, indeed, we think it does—but it is certainly not the work we should place in the hands of a student of medicine. Nevertheless the "Compendium" may be found a "handy" book by the practitioner; and lest we may be accused of too great a bias towards modern doctrines, we recommend our readers to take up Dr. Dale's work and judge for themselves as to the justice of our criticism.

On Diseases of the Chest; being Contributions to their Clinical History, Pathology, and Treatment. By A. T. H. WATERS, M.D., F.R.C.P., Physician to the Northern Hospital, Liverpool. London: Churchill.

UNITING his histological to his clinical researches, Dr. Waters here gives us a treatise on the pathology and treatment of diseases of the heart and lungs, and of aneurism. As might have been anticipated, he devotes a very large share of his remarks to questions of morbid anatomy, but he by no means neglects therapeutics. A special value attaches to the commentaries of a physician like the author, for he writes, not merely upon the evidence adduced by others, but brings the matured experience of a long practice to bear upon the many disputed points in the treatment of disease. Perhaps no better test of an author's tendency to dogmatism rather than to honest generalization could be offered than the subject of the treatment of pneumonia. On this problem Dr. Waters expresses himself fearlessly, but without prejudice toward or disregard of the labours of even recent workers. At the outset he states his conviction that no single line of treatment will be found applicable to all forms of pneumonia. He avoids large doses of what are called antiphlogistic remedies, and, save in rare instances, records his disapproval of blood-letting. Tartar emetic, according to his experience, is occasionally useful in cases where stimulants fail, but its administration must be attended with care and watchfulness. In regard to the propriety of administering alcohol, he believes that there are some cases which may be conducted to a satisfactory issue without the use of a drop of alcoholic stimulants, whilst there are others in which alcohol forms the only therapeutic agent to be relied upon. From his general experience of the effects of mercury he disapproves of it: not so however of opium. Indeed, he has found that the pain in the side, for which he used formerly to advise blood-letting, may be generally relieved by the administration of a dose of opium. Ipecacuanha is not, says Dr. Waters, much to be relied on, but, as stimulants, carbonate of ammonia and chloric ether prescribed together will be found excellent. Touching the supply of food to the patient, we should think Dr. Waters would satisfy even Dr. Hughes Bennett. In the early stages of a severe attack, he says, there "is but little desire for food, and there is a risk, if the mere feelings of the patient are alone consulted, that nourishment may be withheld too long. It is not desirable to starve a patient even during the acute stage of the disease; but small quantities of such nourishment as can be taken, excluding solid food, may be safely allowed. * * * As the case progresses, and the appetite begins to improve, the diet

should be more liberal." He advises the employment of fomentations in the early, and blisters in the later, stage of the disease.

Our space does not admit of our going more fully into an analysis of Dr. Waters' book, but we think we are justified in saying that the remarks on the treatment of the several affections dealt with in his treatise are as generally comprehensive and rational as those above referred to. The tables of cases are valuable, and though the author has but very briefly referred to the sphygmograph, we doubt not his volume will be as highly appreciated as it deserves to be.

Clinic of the Month.

Laryngo-Tracheotomy in case of Suffocation from drinking Boiling Water.—In a case which recently occurred at Westminster Hospital, a child, aged two years, was all but suffocated from having drunk boiling water from the mouth of a teapot. When seen by Mr. Mason, the child had the most distressing dyspnoea, which was becoming more urgent at each inspiration. With the concurrence of his colleague, Mr. Brooke, Mr. Mason opened the trachea high up, and cut through the cricoid cartilage. When the tube was introduced, which was readily accomplished, the patient was instantly relieved. In the after-treatment, the tube was taken out at intervals, in order to ascertain if the child could breathe without it; but it was not until the twelfth day that it could be wholly dispensed with. The wound in the throat healed rapidly, and the child left the hospital perfectly well. (See *Lancet*, Aug. 22.)

A New Mode of Treating Diseases of the Cavities of the Nose.—Dr. Thudicum has described a series of apparatus, consisting of an oxyhydrogen lamp, reflector, with shade for eyes and forehead of operator, specula, platinum, wire loop carrier, and pulley with handle, an electrical (galvanic) battery of five large Grove's elements, and connectors and conductors. With these he performs operations for nasal polypi. He thus describes the operation:—The apparatus being all ready, the head of the patient is resting against the assistant, who steadies himself by means of his left hand upon the back of the chair, and with his right holds the speculum upwards, resting his thumb gently upon the patient's forehead, the loop of soft platinum wire is introduced into the carrier, and connected with the windlass; it has been white hot a moment before, and is now cool again. Everything is ready, and the operation proceeds. The platinum loop is passed over the polypus, it is then constricted round its pedicle by means of the windlass, connexion is made with the battery, and after a slight hissing noise, indicating the burning off of the pedicle of the polypus, the growth, mostly yet attached to the platinum, can be withdrawn from the nose entire. There is usually no bleeding, and the place where the polypus was attached is marked by a white stripe or spot. The patient has suffered some irritation from the instrument, and perhaps been

obliged to sneeze, but after the use of his pocket-handkerchief is quite ready to proceed to the extraction of the next polypus. (See *Lancet*, Sept. 5.)

A Case of Successful Ovariectomy is recorded by Mr. John Kempthorne. In this case the tumour, which on the first incision was found adherent to abdominal walls, was punctured by a scalpel, and the fluid allowed to escape filled two buckets. On extending the primary incision the tumour was found adherent to several abdominal organs. Some of these adhesions were easily broken down by the finger. The large adhesion just below the stomach was clamped and cut through by the actual cautery about three inches, as well as another situated in the right side. The final attachments lay across the pelvic cavity; some were broken down, and three inches clamped and secured on the right, and a pedicle of four inches on the left was separated by the clamp and hot irons. The abdominal walls were closed with twelve silver sutures which were passed by Baker Brown's tubular needles, the needle passing each time through the peritoneum. The operation was performed on the 29th of May, and the patient could walk a mile on July 11th. Mr. Kempthorne considers the success of the operation to be entirely due to the use of the actual cautery recommended by Mr. Baker Brown. (*Ibid.*)

Treatment of Obstruction of Bowels.—Dr. E. Copeman records several cases of obstruction of bowels which had been unrelieved by ordinary purgatives and by enemata. They yielded in a few days to a treatment consisting in the application of hot fomentations (sometimes with turpentine) to the abdomen, and the administration of pills containing watery extract of aloes and opium. (See *British Medical Journal*, Sept. 5.)

Tracheotomy and Laryngotomy in Acute and Syphilitic Laryngitis.—Several cases of this kind, all being successful, are reported by Mr. Evans in the above journal. They occurred in the Hull General Infirmary, and were under the care of Sir H. Cooper and Drs. Daly and King.

Closure of Hard Palate.—A patient, who had been operated on four years ago by Fergusson's method for closure of the soft palate, presented herself at Westminster Hospital for operation on the hard palate [attempted two years previously], and the following operation was performed by Mr. Francis Mason:—A strong instrument known as "Langenbeck's raspatory" was introduced through the soft tissue near the alveoli on each side. The soft parts were readily separated from the vault of the palate in a direction towards the aperture. The edges were then pared and brought together by two silk sutures. There was not the slightest

tension on the parts. The case did perfectly well. Mr. Mason explained that at the previous operation he had adopted a rather different mode of proceeding. He had then used a rectangular knife, and had separated the soft structures from the hard palate in a direction from the fissure towards the alveoli, and had completed the operation by incising the flap on each side. He thought that the operation he had just performed was more easily accomplished, and a much more substantial flap was obtained than on the previous occasion. (See *Medical Times and Gazette*, Sept. 5.)

Belladonna as an Antidote in Opium Poisoning.—The view that belladonna is an antidote to opium appears to receive confirmation from two cases which recently came under Dr. Radcliffe's care at Westminster Hospital. In one case the patient was admitted quarter of an hour after swallowing three drachms of laudanum. She was scarcely sensible, skin cold, pupils much contracted and fixed, very sleepy, and complained of mist before her eyes. At 10:30 a.m. a sulphate of zinc emetic was administered, and after that she was given strong coffee. Then at 2:30 a castor oil and turpentine enema was given, a mustard poultice to pit of stomach, and ten minims of tinct. of belladonna every half-hour. The belladonna was continued till evening of following day with best effects. On the fourth day from admission she was convalescent. The treatment in the second case was very similar. Both cases were successfully treated: the result apparently being due to the antagonistic action to opium which belladonna exerts upon the system. (See *Lancet*, Sept. 5.)

Digitalis in Delirium Tremens.—Mr. G. E. Gascoigne, assistant surgeon, R.A., expresses his belief that digitalis is the remedy *par excellence* in delirium tremens. He records five interesting cases. He considers the advantages of the drug to be a tonic action on the heart, a sedative to the nervous system (particularly marked in two cases), a rapid induction of sleep, and cessation of delirium. He has now treated eleven cases of delirium tremens with tincture of digitalis, and with uniform success. The smallest quantity required has been four drachms, and the greatest twenty-eight drachms. This last was taken in thirty-three hours by a man in Canada; the only effect was that he was bathed in warm perspiration, and slept soundly for two days and nights, with the exception of waking up every six hours to drink beef-tea. This was the worst case of delirium tremens he had ever seen. Although he had never found any bad results from the medicine, he invariably examined the patient before repeating the dose, as poisoning is possible. This, without doubt, occurred five or six years ago to a patient who was ordered four drachms of the mixture every two hours, and very shortly

after the third dose died, with all the symptoms of poisoning. Therefore, if this treatment be decided on, he would strongly recommend that the patient be carefully watched. He feels perfectly convinced as to its value, even if considering only the shortening of the disease, this treatment only requiring from one to three days at the most; whereas the old modes require from three to fifteen days to combat the disease. (See *British Medical Journal*, Aug. 29.)

Difficult Dentition treated by Lancing the Gums.—On this subject Mr. J. H. James contributes a useful paper to the *Lancet* (August 29th). He raises the whole question of the advisability of lancing the gums to reduce the difficulties of painful teething. He states that the experience of fifty years has convinced him that the employment of the lancet in these cases is attended with the best results. He adduces many facts and arguments in support of this opinion. With reference to the position of the child during the operations, a point of some moment, he gives the following advice:—The head must be completely secured. The woman who holds the child (it had better not be the wet-nurse), seated on a low chair, lays it across her lap, so that the head may come between the knees of the operator, seated a little higher, so that it may be held as if in a vice; he will then have the jaws at his complete command, may examine them as to the necessity for interference, and if necessary lance them effectually. The incisors require a single incision; the remaining teeth, including the cuspidati, require crucial incisions.

Strangulated Femoral Hernia treated by Division of the Stricture External to Sac.—A case of this kind, in which the taxis was twice unsuccessfully attempted, occurred in the practice of Mr. A. Poland, at Guy's Hospital. The second attempt at the taxis having been made with some considerable force, but without effect, Mr. Poland immediately proceeded to return the hernia by operation. A very small lancet wound, of a size to admit the entrance of a hernia knife, was made through the superficial parts to the inner side of the tumour. A common curved blunt-pointed hernia knife (known generally as the Astley Cooper hernia knife) was attempted to be introduced, but it was stopped by some strong fascia. This was readily overcome by withdrawing the knife, and passing a small probe, which made a passage through the fascia, when the knife readily entered, and was passed along the loose cellular tissue external to the sac towards Gimbernat's ligament, and then, by gentle manœuvring and coaxing, the knife readily passed under the constricting ligament, which was then divided. The knife was withdrawn, and the hernia reduced with remarkable facility. A

small pad was placed over the situation of the hernia, and confined by bandages. From this moment all symptoms subsided, and the patient had some sleep during the night. All vomiting and all tenderness disappeared. There was never a bad symptom afterwards. (See *Medical Times and Gazette*, Sept. 19.)

Tannic Collodion in Herpes and Eczema.—Dr. Leonard W. Sedgwick sends us a note, in which he says that he agrees with Dr. Sidney Ringer in his estimate of the value of glycerine of tannin, and adds that he has used it in a concentrated form for some years with very great advantage in clergyman's sore throat, so called. He thinks that the local application of tannin is most valuable in the treatment of Herpes and Eczema, but in most cases prefers an ethereal solution to the glycerine, because the latter, by its absorption of water and its inability to dry, tends to increase the surface-leaking, and to prevent that combination of the tannin with the albumenoid matters of the discharge, on which, and on the consequent formation of an artificial pellicle or skin, the good effect of this treatment seems to depend. The "styptic colloid" made by Mr. Robbins of Oxford Street, at the suggestion of Dr. Richardson, and which consists chiefly of tannin and gun-cotton dissolved in ether, is a very convenient and useful form. He has not unfrequently destroyed herpes zoster in its earliest stage, by carefully cutting off the heads of the vesicles and painting the denuded and neighbouring surface with the colloid, by which means a dry film is obtained, the chemical action of the tannin is secured; and support is given to the over-full and weakened vessels. In the latter stages, also, great benefit is to be obtained from this plan of treatment. The application causes some smarting for a short time. In eczema it is even more useful, especially in those distressing cases where the itching is so excessive. It affords instant relief; it may be renewed as often as the itching returns; and, where no assimilative or other internal fault needs correction, it suffices for the cure. He has also used it with great advantage in several cases of skin disease, depending upon, or accompanied by, parasitic growth.

Carbolic Acid in Strumous Ophthalmia.—Mr. E. C. Markey, assistant surgeon (India), recommends the following as an excellent collyrium in cases of strumous ophthalmia. He was led to its employment by seeing that Sir H. Thompson uses a carbolic acid injection in certain cases of chronic cystitis. The following is the formula:—Carbolic acid, 1 drop; glycerine, 5 drops; rose-water, 1 ounce. (See *Lancet*, Sept. 19.)

Treatment of Hospital Gangrene by Bromine.—Dr. J. W. Bligh, late assistant surgeon, U. S. Army, gives a minute account of the employment of Surgeon Goldsmith's treatment of

hospital gangrene by bromine. Though this method was little adopted in the earlier part of the war, it became very general toward the end. Dr. Bligh states, that during the months of June, July, and August 1864, 100 cases came under his care; all were treated by bromine, and terminated favourably. The following, which are Dr. Bligh's directions as to the mode of using the bromine, will be found useful by surgeons:—The wound must be *thoroughly* cleansed of all gangrenous slough by means of a wooden spatula or blunt scalpel, until the firm healthy tissues beneath are reached, and the parts dried as perfectly as possible with tow. To do this effectually, the patient is first placed under the influence of some anæsthetic, a mixture of equal parts of chloroform and ether being generally preferred. The ether is used to counteract by its stimulating properties the depressing effects of the chloroform, whilst the rapidity of action of the latter is maintained. Without first *thoroughly* clearing away the diffuent slough, bromine, powerful as it is, is unable to penetrate to the healthy tissues. To want of this very necessary precaution he believes all the failures attributed to it are to be ascribed. Having thus prepared the wound, pure bromine is applied by means of swabs of lint attached to the end of small sticks, say eight or ten inches in length; great care being taken to touch every portion of gangrenous surface. The bromine being extremely volatile, penetrates every sinus, &c., which could not be reached by any of the other solid or liquid escharotics in use. The bed or operating table upon which this application is performed must be placed in such a position that the fumes, which are extremely irritating and annoying, will be carried off by a draught of air in a contrary direction from that in which the operator and his assistants are. After the application, the wound should be stuffed with lint damped in a *solution* of bromine, made with water and bromide of potassium, and then wrapped up in oil silk. After the lapse of a few hours, linseed poultices are applied to facilitate the removal of the eschar, which soon peels off as the skin from a boiled potato, leaving healthy rose-coloured granulations below. The wound is then treated in the ordinary way; special care, however, being taken to keep the parts clean, and, by means of dressings saturated in some weak disinfecting solution, to prevent the absorption of fresh virus. (See *Lancet*, Aug. 29.)

Notes on Therapeutics,¹

AT THE OXFORD MEETING OF THE BRITISH MEDICAL
ASSOCIATION.

Report of the Committee appointed to investigate the Action of Mercury as a Cholagogue.—This Report, which was presented by Dr. Hughes Bennett, is the result of the labours of a committee appointed by the Association, and which pursued its labours at Edinburgh; and the greater part of the practical work was done by two able and industrious members, Drs. Rutherford and A. Gamgee. The research consisted of a series of experiments on dogs; seven animals, in all, being successfully operated upon. A biliary fistula was established in each case, and proper precautions having been taken to allow the constitutional disturbance to subside, the normal daily average secretion of bile was carefully ascertained, and then the animal was submitted to the influence of mercury. The preparations of mercury used were pil. hydrargyri, calomel, and corrosive sublimate. As regards dog No. 1, to which blue pill only was given (in 5-grain doses), the result comes out very plainly, that no increase either of fluid bile, bile solids generally, or bile salts, was occasioned by the drug. Dog No. 2 had calomel given on successive days, in quantities varying from 2 to 12 grains in the twenty-four hours: here there was a notable diminution in the secretion of fluid bile (the only item noted). Dog No. 3 had seven doses, fourteen doses, and six doses, respectively, of $\frac{1}{12}$ grain of calomel each, given at intervals of an hour, on four successive days, with a negative result in every respect: the drug was evidently inoperative. Dog No. 4 had mercury given on five days (with two days' interval between the third and fourth experimental day); 10 grains pil. hydrarg. being given on two of the days, and on the other three, $\frac{2}{12}$ and $\frac{1}{2}$ of a grain, and one grain being respectively administered: the general result was a most marked diminution of all the ingredients of the bile. Dog No. 5 had corrosive sublimate ($\frac{4}{5}$ grain) given on two consecutive days: the effect was a marked diminution of all the elements of bile. Dog No. 6 had $\frac{1}{6}$ grain corrosive sublimate given him for three suc-

¹ These Notes take the place in this Number of the usual Extracts from British and Foreign Journals.

cessive days, $\frac{1}{6}$ grain on each of six successive days, $\frac{1}{6}$ grain on one day, $\frac{2}{3}$ grain on one day, $\frac{1}{3}$ grain on one day: the result showed (1) an evident though moderate diminution of all the ingredients of bile down to the eleventh day of the experiment, and then (2) a sudden fall to a much less quantity. Dog No. 7 was treated with corrosive sublimate ($\frac{1}{3}$ grain on each of eight consecutive days; then $\frac{1}{6}$ grain, then $\frac{1}{3}$ grain, then $\frac{2}{3}$ grain on each of three days) with much the same results: besides a marked diminution down to the twelfth day, there was then a marked and sudden fall. In this last case marked salivation was produced on the tenth day; and in dog No. 6 diarrhoea occurred on one or two days.

The general deductions from the experiments are plainly (1) that in poisonous doses mercury produces the same characteristic effects on dogs as on men; (2) that in moderate doses it is absolutely inoperative on the liver secretion; (3) that in large doses it produces a distinctly marked diminution of the biliary secretion.

The report of the committee insisted on the above conclusions, and drew the further inference that mercury might legitimately be concluded to have no true cholagogue influence upon the biliary secretion of man, except to diminish it when given in large doses. The objections which were urged by various speakers resolved themselves into the following categories:—(1) It was objected that experiments on dogs, whatever their positive value, could not legitimate any conclusions as to the effects of mercury on man. Those who urged this view, for the most part, relied on the different alimentation of the dog from that of human beings, and urged, either that a graminivorous animal, such as a donkey, or a practically omnivorous animal, like a pig, should have been experimented on, at least for the sake of comparison. It had of course been overlooked that the donkey has *no gall bladder*, and that the pig is a most excessively troublesome animal to experiment upon at all, besides that his bile chemically differs from that of man in a far more important sense from that in which the dog's bile is different. Besides these specific objections, the general arguments were put forward, either that *all* experiments on the action of drugs on animals were fallacious as applied deductively to their action on man, or that a much more extended series of comparative experiments ought to have been made on a variety of different species. In answer to all the objections on this score, it was urged that the dog really presents a fair approximation, as regards his food and as regards the chemical elements of his bile, to man. And it was further stated by Dr. A. Gamgee at the British Association meeting at Norwich (where the same Report was again read and discussed), that the apparent differences between the action of the same

drugs on different mammalian animals are mainly superficial, and relate to *degree* rather than to *kind*; and that there is no real difficulty, to those who are familiar with experimentation on the large scale, in eliciting reliable results from operations performed on mammals of different groups. (2) It was objected by the President, Dr. Acland, that, whatever the apparent results of experimentation on animals might be, the broad fact remained, that in "bilious" derangements the most unquestionable and speedy relief was afforded by moderate doses of mercury in the shape of blue pill. Dr. Hughes Bennett, in replying, did not dispute this fact at all; but said that the effect was *not* produced by any cholagogue action, but by something different and as yet not understood. (3) A far more important objection than either of the above, was based on the fact that the experiments of the Edinburgh committee only represented the *physiological* effects of mercury given to *healthy* animals; and that, granting the legitimacy of the inference from these to the effects on *healthy* men, it was impossible to predicate the identity, or even the analogy, of the effects of the drug on men affected with morbid conditions. Undoubtedly this was the crucial point which the Report, and the discussion upon it, left unsolved; though an immense gain to science must be recorded in the confirmation which the Edinburgh experiments seem to have afforded to the conclusions of Scott and others as to the impotency of mercury to increase the secretion of the healthy liver, and its positive tendency to diminish it when given in considerable doses.

The Relations of Food to Force, in their bearings on the Treatment of Disease.—Professor Haughton's important address on this subject contained some remarks of the highest practical value. In the normal condition of the organism, he considers that the generation of force takes place within the blood-vessels, and at the expense chiefly of the oxidation of food supplies. The wasting of nitrogenous tissues is now proved to be only one small and partial source of the force which appears as muscular motion and as organic movement; and it can be derived from the oxidation of non-nitrogenous, as well as of nitrogenous foods. In acute disease of the type which is represented by typhus fever, voluntary muscular motion is indeed reduced to a minimum; but work of the most important and extensive kind is being done by the excited organs of unconscious and of vegetative life, work which represents an expenditure of force equal to that which is made during the daily labour of men employed in avocations which require severe muscular exertion; and this generation of force is really (in the absence of the power to assimilate the ordinary food) produced at the expense of important nitrogenised tissues of the body.

Hence it becomes our duty to supply food of a more easily assimilable and oxidisable kind than is employed in health, in order that the rapid oxidising action which is a necessary concomitant of the disease may be expended upon these aliments, to the saving of the tissues. The more readily absorbed animal foods fulfil this need to a certain extent; and when these fail *alcohol* must be given, as a substance eminently adapted to serve as readily convertible fuel, which may sustain the functions of life.

Very different, indeed almost exactly opposite, is the condition of things in Asiatic cholera. During the characteristic "collapse" period of this disease there is an *arrest* of assimilating processes, an arrest of oxidation. "It is useless to give alcoholic fuel to restore the loss of animal heat, for there is no circulation to cause the oxidation of the hydro-carbons." It is equally useless to give medicines, such as opium, which will not be absorbed, but will simply be stored up as absorbable poison to work mischief in the "reaction" stage. But the deficiency of force in the body is real, and the so-called "eliminative" treatment, if operative at all, may simply exhaust what force exists, and turn the balance in favour of death. The metaphysical theory of "assisting nature" is here most mischievous, for the action of "nature" is wholly injurious. The only treatment which holds out a rational prospect of real advantage is that which tends to restore the deficient animal heat, such as warm salt and water injections into the bowels, hand frictions of the surface with turpentine and chloroform, applications of bags of hot salt along the spine.

In diabetes we have yet another, and a very distinct, set of relations of the food ingested to the force produced. The farinaceous food should generate the major part of the bodily force, but as the larger portion of it is excreted as sugar, it simply runs to waste. The work of force production has therefore to be done by the combustion of nitrogenised food; and hence the enormous demand for, and assimilation of, flesh foods, and especially *fat*; while even then there is great exhaustion and a constantly lowered bodily temperature.

Ipecacuanha as a General Stimulant.—Mr. Higginbottom, in an interesting paper on this subject, insisted that, over and above its well-known emetic and diaphoretic effects, ipecacuanha exerts powerful actions on the organism, which are too little understood and appreciated. It is a tonic stimulant of the general capillary system, and as such is susceptible of very extensive therapeutical applications. He has repeatedly, and for many years, made successful use of this drug in such apparent different affections as cholera, intermittent fevers, erysipelas,

neuralgia, periodical drunkenness, uterine hæmorrhage, syncope senilis, &c. &c.

The Limits of Alcoholic Stimulation in Acute Disease.

—Dr. Gairdner, of Glasgow, read a paper on this subject, the object of which was to prove the following points:—1. Nourishment, not stimulation, should be the rule in acute disease; milk being the principal nutriment. Beef-tea is not so effective for the purpose, and in typhoid fever it sometimes provokes diarrhœa. 2. We ought to imitate the alimentation of health, as far as this is consistent with the altered state of things. We ought not to distress patients by waking them to take food. 3. The legitimate use of stimulants is to quicken the digestion and assimilation of food, properly so called; therefore they should be given, if at all, with the food. 4. The dose of stimulant, and the kind of stimulant liquor, must depend upon a variety of considerations connected with the age and sex of the patient, &c. &c. 5. In most cases of acute disease in *young* persons they are not required, or, at any rate, needed in small quantities only. The effect of each dose should be constantly watched; it is far better to withdraw the stimulant altogether for some hours than to overstimulate. It is almost certain that the mortality may be seriously increased in young subjects by continuous stimulation, even when no noticeable intoxication is produced. Continued stimulation tends to cause profuse sweating and dry tongue, to prolong the fever, and to delay the natural crisis. Typhus fever may be taken to be the type of acute diseases in relation to this subject of stimulating treatment; and the constant experience of late years has been all in the direction of diminishing the amount of alcoholic stimulants. The paper included specific references to the high doses of alcohol frequently employed by the late Dr. Todd in the treatment of acute disease, and a condemnation of this physician's "routine" system of high stimulation in acute disease.

In the discussion which followed, Dr. Anstie denied that Dr. Todd's theory of alcoholic stimulation in acute disease involved any routine treatment with high doses. On the contrary, he pre-eminently insisted on the individuality of each case, and the possibility of the widest ranges of difference in the need for, and the amount of alcohol, to be used in particular instances. The most modern researches had conclusively proved that alcohol was a fuel-food, capable, in varying degrees, according to the various circumstances of individual cases, of being applied to the force-producing needs of the organism, and the economy of tissue-waste.

Dr. H. Kennedy, of Dublin, denied that statistics of the results of fever-treatment in any one city or kingdom could suffice to establish a rule. Typhus was not the same disease in all places

and at all times, but demanded very different treatment on different occasions. In Dublin, extreme stimulation is not practised. Dr. Moore, of Dublin, treated individual cases on their own merits. Delirium occurring early in typhus, demanded large stimulation. Dr. Stokes said, that as we could not hope to *cure* fever, it became a question of watching symptoms, and obviating the tendency to death; and to this latter end many foods besides wine were effective. Dr. Fleming said that alcohol was favourable so far as it favoured assimilation; but that it occasionally caused gastric irritation. Dr. Steele, of Liverpool, said that stimulants were not remedies for fever. Sir D. Corrigan's rule was valuable,—“Discover the chief lesion: if this be vascular, stimulate; if it be of the nervous centres, stimulation can do no good till sleep has been procured.” In the epidemic of 1849, at Liverpool, the mortality was high, and stimulation was not much used; but many cases did well without it. Dr. T. K. Chambers laid down two maxims,—1. Where there is delirium, generally give stimulants; 2. Where wine helps assimilation, give it. Dr. Ogle, of Derby, gives stimulants where there are furred tongue and sordes on the teeth, and generally where there is delirium. Dr. Haughton stated that stimulants were not given at the Longford Infirmary. Dr. Gairdner, in reply, declared that he was no bigot on this question of alcohol: he admitted that there were variations in the *intensity* of epidemics; but he denied that typhus was a *different disease* as it occurred at various places and times.

The Principles of Anæsthesia, and the Anæsthetics of the present Day.—Dr. A. E. Sanson read two papers, the tendency of which was to approve the principle of certain modes of producing anæsthesia which are coming into use at present. The successful employment of nitrogen for this purpose has shown what may be effected by the mere deprivation of oxygen, and this is the true *modus operandi* of anæsthetics, as far as they are useful. They act (1) upon the blood-corpuscle directly, especially upon its hæmoglobulin, impeding its oxygenation; and (2) they reduce oxidation indirectly, by modifying the forces by which the blood is circulated. There is no sufficient evidence to warrant us in believing that they have any direct action upon the central sensory ganglia. They are stimulant both to the cardiac and vaso-motor systems; they contract the systemic arteries, and impede the velocity of the blood current; while at the same time the blood is squeezed out into the venous system, which becomes gorged. *Chloroform* unfortunately also possesses the power, when its vapour is insufficiently diluted, of *paralysing* the cardiac and vaso-motor forces—hence its danger. If cautiously diluted, however, and especially if mixed with equal

parts of alcohol, there would be little peril. Nitrous oxide, which acts almost entirely by producing excess of carbonic acid in the blood, Dr. Sansom considers a most valuable agent for short operations, such as those of dentistry, but it ought never to be intrusted to any but skilled hands. It should not be given to patients suffering from pulmonary, cardiac, or cerebral affections.

Cardiac Neuralgia.—Dr. Anstie read a paper, in which he endeavoured to prove that the essential pathology in a whole group of cases which exhibit more or less typically the features of what is known as angina pectoris, are *neurotic*; and that the very various cardiac and vascular lesions which are found in different cases are but accidents and complications. A system of treatment based on this principle proves greatly more successful than any other: the two remedies which have yielded him the best *permanent* results are arsenic given by the stomach or by inhalation, and strychnia subcutaneously injected in doses of from $\frac{1}{120}$ to $\frac{1}{40}$ grain. The benefit produced by these remedies is very remarkable. The best palliative for the actual attacks is ether, in teaspoonful doses.

Ergot of Rye in Neuralgia.—Mr. Woakes repeated the successful use of the ergot in five cases of neuralgia, each of which was cured in from four to six days. He propounded the theory, that neuralgia depends upon an effusion of liquor sanguinis from the artery in the track of which the symptoms appear. The pain is supposed to be produced by a mechanical compression of the sentient nerve-fibrillæ by the effused fluid, and it is the office of the ergot to restore the suspended vasomotor function, the interruption of which had allowed the effusion to occur.

Therapeutics of Nervous Disorders with Excess of Motility.—Dr. W. Strange advanced a number of arguments to show that all affections of this class depend on a diminution rather than an excess of nervous force, and submitted that on this view the treatment of all these disorders should be directed; (1) to improve the quality of the blood, and (2) to present material easily assimilable by the nervous tissue. He had seen the most rapid recoveries from chorea, hysteria, mimosiis, &c., from frequent small doses of alcohol, given as food to the vesicular neurine, and combined, in some instances, with cod-liver oil; and in epilepsy had obtained the best results from large doses of bromide of potassium.

Ether and Etherized Cod-Liver Oil in Phthisis.—Dr. Balthazar W. Foster reported the results of this treatment, which was based on the theory, that as ether has been shown by

Bernard to be capable of almost indefinitely increasing the secretion of the pancreas, it would be possible by its use to obtain the means of a much larger assimilation of fatty matters than could otherwise take place. The patients treated were all observed over some months, and some more than two years. Forty-two per cent. improved under treatment, thirty per cent. remained stationary, and only twenty-eight per cent. became worse; in twelve per cent. the disease was, by all evidence, arrested. Every case was weighed from week to week while under observation, and only a decided increase of weight, in addition to other signs, received as evidence.

Bromide and Bibromide of Mercury as Therapeutic Agents.—Dr. Protheroe Smith endeavoured to prove that the bromides are more active than the chlorides; and invited the profession to give extended trials to the bromide and bibromide of mercury. He had himself employed the bromide of mercury for some years with very good effects as a cholagogue and purgative, and had also found that it effected absorption of morbid tissue without exciting so much constitutional disturbance as was produced by calomel when used for the same purpose.

Treatment of Stone in Boys.—Mr. Thomas Smith, F.R.C.S., read a paper, in the course of which he very strongly recommended the following precautions to be adopted in performing lithotomy on boys. In the first place the bladder should be nearly empty at the time, and the staff should be so manipulated, according to a plan which he described at some length, as to diminish the size of the wound necessary for extracting the stone. A very long and slender forceps should be used; and immediately after the operation a canula should be introduced, surrounded by a plug of lint. He believed that he had seen cases in which life was saved by the adoption of this plan.

Torsion of Arteries.—Professor Humphry, of Cambridge, gave an account of his own experience of torsion as applied after surgical operations, and also of some experiments made on animals during life, and on the arteries of men and animals after death. His surgical experience of torsion, extending over some months, proves that this proceeding answers quite well, even for capital operations; and, indeed, the healing of the wounds has been quicker and less painful than after ligature. Torsion is, however, rather difficult, and more lengthy than ligature. Professor Humphry seizes the end of the vessel with strong forceps, and twists, in the axis of the vessel, till the piece he holds comes off; and he believes this method affords greater security than any other. Torsion is strongly recommended for the small vessels, as the operator can tie any number, and not leave any foreign

substances behind in the wound. As to vessels of the size of the femoral, additional experience is needed before we can pronounce the method to be absolutely safe and sufficient. Experiments on animals prove that there is considerable difference in the firmness with which large arteries are occluded, so as to resist interior pressure, in different cases, and this may possibly be remedied by future improvements in the method. In operating on the large arteries of animals, it is sometimes found that the vessel has come untwisted before the wound could be closed, and required to be twisted anew. Professor Humphry inclines to believe that, unless this untwisting occurs in the first instance, it is not likely to occur at all; and in the later stages torsion appears to afford greater security than the ligature, as there is less liability to the ulcerative and suppurative processes, which are almost necessary attendants of the ligature.

Improvements in Plastic Surgery.—Dr. Maurice Colles read a valuable and elaborate paper on this subject, which it is impossible to represent fairly by a brief abstract.

Innominate Aneurism treated by Acupressure of the Carotid and Brachial Arteries.—Mr. George May related a case of this kind. The aneurism was of twelve months' standing. On August 19, 1867, a needle was put behind the carotid, and a probe behind the brachial, close to the axilla: pain and visible pulsation were arrested. The needle was removed after seventy-two hours; the pulse recommenced in the temporal, and the carotid was ligatured. The probe was removed from the brachial after ninety-six hours. There was return of visible pulsation on the twelfth day. The aneurism was partially arrested, and the patient enabled to do easy work. The author considers that acupressure possesses considerable advantage over ligature for such operations.

Cancer removed by Caustic Arrows and Carbolic Acid.—Dr. J. R. Wolfe related two successful cases in which cancerous tumours of the face were treated by insertion of caustic arrows, and, on the mass separating, dressing the wound with carbolic acid. The advantages of the process are: 1. Little or no pain; no confinement to bed. 2. Complete extirpation of disease. 3. No mark left. 4. The process is applicable where no skin can be obtained from the neighbourhood, and for erectile tumours, nævi, cancer of the breast, &c., where, from some reason the knife cannot be used. The arrows are made of a paste of chloride of zinc and starch. The process is very valuable for obliteration of the lachrymal sac, &c., and no epiphora follows.

Treatment of Local Vaso-motor Affections.—Dr. J. Russell Reynolds described a number of curious affections, con-

sisting in localised numbness, and other abnormal sensations, and advanced arguments to show that they are essentially local, and depend upon morbid vaso-motor action. He gave high praise to the bromide of potassium in the treatment of these troublesome complaints, which very often excite unnecessary alarm, from the fact that they are wrongly supposed to indicate central nervous lesion.

New Method of performing Transfusion.—Dr. J. Braxton Hicks described a new process of transfusion, in which a solution of phosphate of soda mingles with the blood stream while it is flowing. This plan removes, to a large extent, the most formidable impediment to the more general use of transfusion, viz. the tendency of the blood to coagulate, an accident which is not only troublesome, but dangerous, as a clot might be driven into the circulation. Having tried preliminary experiments on animals, Dr. Hicks has now used his method three times for women during delivery: it simplified the operation to a great extent.

The Treatment of Intra-uterine Polypi.—Dr. G. H. Kidd dilates the cervix uteri, in order to search for intra-uterine polypi, by means of pieces of sea tangle long enough to traverse the whole cavity of the uterus, and the size of a No. 5 or 6 bougie: he fills the whole canal of the cervix as completely as can be done without force or pain. Usually five or six pieces can be introduced at the first attempt, owing to the relaxation from hæmorrhage. This dilates sufficiently to allow a full exploration of the whole cavity of the uterus. Dr. Kidd removes the polypi with a single wire *écraseur*: he has operated in a great many cases with the best results. He related an extraordinary case, in which he removed twenty-nine polypi at four successive operations; the interior of the uterus was subsequently painted over with strong nitric acid, in the hope of preventing the recurrence of these simple fibrous tumours, and, so far, with good effect.

Treatment of Versions and Flexions of the Uterus.—Dr. Graily Hewitt read an elaborate paper on the use of various forms of pessaries for remedying these affections; but it would be impossible to give a clear idea of his methods in a short abstract, and without the aid of diagrams.

Ovariectomy performed during Acute Peritonitis.—Dr Alfred Wiltshire related the case of a woman, aged 49, mother of nine children, who was healthy till a year ago, when the belly began to enlarge, and the catamenia became irregular. There were attacks of pain and tenderness from time to time. On May 1, 1868, after a long walk, all the symptoms became

aggravated, and severe acute peritonitis, with rapid enlargement of the tumour, set in. On May 3, Dr. Wiltshire found her apparently moribund: the extremities were cold, the pulse scarcely to be felt, and there was incessant vomiting. Dr. Wiltshire recommended ovariectomy, and the patient having improved under nutrition, enemata, ice, opium, and champagne, ovariectomy was performed by Dr. Wiltshire, on May 4th, under chloroform, Drs. Watson and Murray assisting. The tumour was large and non-adherent; the peritoneum was everywhere brilliantly injected; about three pints of glairy serum escaped. The cyst was tapped with Dr. Murray's trocar, and yielded about a gallon of blood, but was still very large. It rent in the attempt to remove it, and a quantity of blood escaped into the peritoneal cavity. The pedicle was very small, and so rotten that no clamp would hold it, and the ligatures gave way. Hæmorrhage was only arrested by transfixing and tying the right half of the uterus: silver sutures were used for the wound in the abdomen, which united *by the first intention without the formation of a drop of pus. The patient rapidly improved, and recovered perfectly, without a rigor.*

Treatment of Puerperal Convulsions.—Dr. J. G. Swayne, read a paper, in which he argued strongly in favour of *bleeding* in puerperal convulsions, and cited several cases from his own practice, and that of others, in which, after other measures had proved unavailing, venesection at once controlled the convulsions. He specially recommended venesection in cases of convulsion of *centric* origin.

Notes and Queries.

TRANSFUSION IN LEUKÆMIA.—In reply to a query in our last, we may state that one of our contributors has attempted this operation, and has had tolerably satisfactory results. These results, we believe, he will lay before our readers in an early number.

BELLADONNA IN INFANTILE ICTERUS.—Dr. Waring-Curran sends us a cutting from a contemporary, in which he states that he disagrees with Sir Thomas Watson as to the non-existence of *Infantile Icterus*. He believes the affection to be not uncommon in children. He has found the employment of tincture of belladonna in drop doses very efficacious, as he thinks secretion of bile is not arrested but is simply retained by a spasmodic contraction of the ducts.

NITRATE OF SILVER IN PYROSIS.—Mr. J. Kent Spender writes to us in reference to Dr. Lawson's paper on "Sulphurous Acid in Pyrosis," in our last number, to say that he believes that no other medicine can compete with nitrate of silver in this affection, and that "no other medicine deserves to be mentioned in the same year with it." The omission of nitrate of silver from the list of drugs given in the paper on pyrosis was purely accidental. Dr. Lawson had given this drug many patient trials, and was obliged to confirm Brinton's opinion that "it is absolutely inert." [Mr. Spender has since informed us that he has never tried sulphurous acid.]

ENGLISH AND FRENCH MEASURES IN THERAPEUTICS.—Dr. Bankton is thanked for his letter on this point. There are, as he doubtless comprehends, many difficulties on both sides. In future, however, we shall endeavour to meet his wants in the metric direction.

COD-LIVER OIL CAPSULES.—"A Physician" writes to us as follows:—"Can you tell me where I can purchase cod-liver oil in capsules, at anything like a fair price? Finding it impossible to induce some of my patients to take the oil, I persuaded them to try "capsules," and with very good results. Now, however, an objection, and I think a very just one, is raised on the score of cost. The only soluble capsules I am acquainted

with are those of *Le Maout*, of Princes Street, Leicester Square. A box of these, containing about forty capsules, costs 1s. 6d. Reckoning six capsules to a teaspoonful [an estimate, if anything, below the mark], this gives us very nearly threepence as the price of the very smallest dose of the oil one would administer to an infant. On the score of expense, then, this elegant mode of administering the oil cannot be often employed. But surely these capsules, which simply consist of gelatine inclosing the oil, can be produced at a cheaper rate. Can any of your readers tell me of a less expensive form of soluble capsule than that referred to?"

ERGOTIN IN HOOPING-COUGH.—Ergotin, in the form of lozenges, is highly recommended in cases of whooping-cough, by Herr Dr. Hampel. He thinks that it diminishes the irritability of the mucous membrane, and tends to increase the secretion of mucus.

A NEW HOT-AIR BATH of simple construction, but which appears an improvement on the forms now most generally in use, has been described and figured in the *Lancet* (Sept. 5th), by Surgeon Major Wyatt. It would, we think, be desirable to inquire (in the case of hot-air baths, even of the form in question) how far the carbonic acid developed by the source of heat, and in which the body of the patient may be said to be immersed, may be beneficial or detrimental to health.

THE EXTERNAL APPLICATION OF IODIDE OF POTASSIUM.—Mr. James Hird, of Pembroke, sends us the following formula for the external application of the iodide:—Take of glycerine, $\bar{3}j$; iodide of potassium, $\bar{3}ss$; best yellow soap, $\bar{3}ss$: rub up the iodide thoroughly with the glycerine, and then add the yellow soap. This application is found to be very active in removing glandular tumours, &c.

SULPHITE OF SODA IN CHRONIC CYSTITIS.—Mr. L. Wilcox, late house-surgeon of King's College Hospital, recommends the use of sulphites in those cases of chronic cystitis where the urine decomposes before it is eliminated. He finds that by the employment of the sulphite all the putridity disappears, and the urine becomes clear and odourless.

COUNTER-IRRITATION AND GALVANIC INDUCTION.—We cannot at present lay any communication on this subject before our readers, but if E. M. thinks he can demonstrate that the effects of counter-irritation are the development of an external nervous current, which, by "induction," causes a corresponding internal nervous current, he should address his observations to the editor of the *Journal of Anatomy and Physiology*. We cannot presume to offer any opinion on the hypothesis.

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¹ Any of the foreign works may be procured by application to Messrs. Dulau, of Soho Square, W.C. ; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

THE PRACTITIONER.

NOVEMBER, 1868.

Original Communications.

ON THE INHALATION OF AN AQUEOUS SOLUTION OF CARBOLIC ACID UNDER THE FORM OF SPRAY FOR THE TREATMENT OF PHTHISIS.

BY WILLIAM MARCET, M.D., F.R.S.,

*Assistant Physician to the Hospital for Consumption and Diseases of the Chest,
Brompton, and formerly Assistant Physician to the Westminster Hospital.*

ABOUT a year ago, on considering the phenomena of chemical decomposition which must take place in the diseased portions of the pulmonary tissue in phthisis, owing to their low state of vitality, it occurred to me that if any antiseptic agent could be introduced into the lungs without interfering with the general functions of the body, the progress of the disease might perhaps be arrested, or, at all events, its rate lessened. I rejected at once such substances as arsenic or metallic salts, and decided on trying carbolic acid under the *form of spray*, as that most likely to cause the antiseptic agent to remain in contact with the diseased parts for some little time before its absorption in the blood. I believe the inhalation of the *vapour* from a solution of carbolic acid has been tried, and it may be in use at the present time. I am not aware, however, of the substance having been inhaled in the form of spray, and had not heard of its being used at all for the treatment of pulmonary diseases at the time I first experimented with this agent.

Although the results I have obtained may be considered, to a certain extent, as satisfactory, still, as it will be seen, it is difficult to determine how far the *antiseptic property* of carbolic acid accounts for its action, when inhaled in consumption.

The results I have obtained may be shortly expressed as follow :—

1st. When a solution of from half a grain to one and a half grains of crystallized carbolic acid in one ounce of water is inhaled in the form of spray by a patient in the chronic first stage of phthisis before softening has taken place, and perhaps also when the process of softening is just commencing, or at the very outset of the second stage, relief is thereby obtained, and in some cases it appears to assist, with other means, in arresting the disease. After using the spray, the patients feel as if their breathing becomes easier and deeper ; on moving about and going upstairs there is less dyspnoea ; the stitch often felt, or the sudden check to the expansion of the chest in the act of breathing, is partly or entirely removed, cough is frequently relieved, and the expectoration may be considerably diminished. The absorption of any fluid in the smaller bronchi and pulmonary vesicles appears to be favoured, as shown by a lessening of the crepitation. I cannot confidently assert that I have known any plastic material in the lungs to be absorbed while the spray was being used, still I believe that in some of my cases the dulness on percussion has diminished, and even disappeared, partly from the effects of the carbolic acid spray. The treatment with the spray should not be adopted exclusively, but in addition to the use of counter-irritation, cod-liver oil, &c.

2d. In cases of acute second and third stages of phthisis, when the process of softening is going on rapidly, accompanied with a quick pulse, high temperature, debility, and emaciation, the inhalation of the carbolic acid spray, although it may afford temporary relief, appears objectionable, from its depressing influence over the action of the heart. I should also think it advisable to withhold the use of the spray in the first acute stage.

3d. A solution of carbolic acid, containing more than two grains to the ounce, should, as a rule, not be used, from its depressing action on the cardiac pulsations.

From the above it will be seen that the spray should be employed with great caution ; and if giddiness, faintness, trembling, with a permanently weakened pulse, or any increased irritation in the lungs, should result from the treatment, it ought to be at once discontinued.

I am in the habit of using the spray as obtained from Clarke's

Hand-ball Spray Producer ; sometimes I have adopted Mathieu's Spray Producer, in which the liquid is projected against the inside of a tube and thus atomised. I have tried and given up the steam spray-producing apparatus on account of the difficulty of regulating its action. It appears to me sufficient to inhale the spray once a day, or once every two days, for a quarter of an hour or twenty minutes.

The following report will give, I think, a correct idea of the action of the carbolic acid spray when inhaled by phthysical patients. The history of the cases will be found very incomplete ; indeed, at the time I took notes of these cases, my object was merely to keep a memorandum of the progress of the disease under treatment with the carbolic acid spray : hence the omissions, for which I must apologize.

CASE I.—Patrick D——, aged 36, has been a workman in an iron foundry :—at present in reduced circumstances. I first saw him on the 15th November, 1867. Has suffered from pulmonary symptoms every winter for the last six years, but was not obliged to give up work till the previous winter. No hereditary predisposition to phthisis. At present, cough, dyspnoea, night-sweats, and emaciation:

Physical signs.—Right apex anteriorly: no respiratory or cavernous sounds, and dulness from apex to third rib. Left: same mucous râles, and respiration harsh ; pain about two inches under left nipple. This was apparently a case of condensation (perhaps only congestion) of the upper part of the right lung, with some effusion in the smaller bronchia and air-vesicles of left.

I prescribed cod oil, and tincture of iodine to be applied to the right apex, and made him inhale for a quarter of an hour a spray containing one grain of carbolic acid, and $\frac{1}{12}$ grain of muriate of morphia per ounce of water, the morphia being added to allay any irritation the carbolic acid might produce. The first four whiffs made him cough, but afterwards he could breathe the spray without inconvenience for a quarter of an hour, when he coughed apparently less than before ; he could breathe deeper, and the pain under the left nipple was relieved.

Called on me 20th November. Says breathing much improved since used spray, coughs less, and expectoration easier ; less pain in chest ; night-sweats not so urgent ; breathes spray with one and a half grains carbolic acid for half an hour. Called

again the next day and inhaled the same solution for half an hour, acknowledges warmly the benefit he has derived from the spray, coughs much less, expectoration much diminished, and dyspnoea not near so urgent. Could not walk a quarter of a mile before using the spray, but can now walk a mile quickly without stopping. Takes the cod oil, and thinks his appetite is improving; respirations twenty-five per minute. On the 5th December the patient had increased in weight by three and a quarter pounds since the 20th November; respiration was then heard distinctly throughout the whole of the right lung, with bronchial breathing at apex, and easier respiration, especially at base. According to my notes, there was then no dulness on percussion anteriorly on the right side; at the back, on that side, coarse, moist râles throughout. Some dulness under left axilla. Now feels better than he has during any of the last six winters, and thinks of going to work. On that day he inhaled the carbolic acid spray with one grain of the acid and $\frac{1}{12}$ grain muriate of morphia to the ounce. Before inhaling—Resp. 21; pulse, 86. After inhaling during quarter of an hour—Resp. 24; pulse, 94. After inhalation for half an hour, during twenty minutes two grains carbolic acid without morphia being used—Resp. 26; pulse, 82. After this he felt giddy and faint.

On the 23d April of the present year, or about four months after the last report, the patient called on me at the Brompton Hospital, having coughed up nearly half a pint of pure liquid blood the day before. On May the 4th was again improving, on iron, quinine, and cod oil. I could then find no distinct dulness on either anterior or posterior sides of the thorax; at the right apex bronchial breathing with rather loud expiration; at the base decided crepitation, and deficient respiratory murmur. I again saw Patrick D—— on the 7th October last, or about eleven months after he had first come under my care. There was then no dulness on right side, though percussion sound not quite so clear as on the opposite. On both sides, respiration perfectly free and normal without any crepitation; has no cough; can run and carry a load without being particularly out of breath.

CASE II.—Daniel M——, in a debilitated condition, applied to me on the 15th November, 1867. The following were the main symptoms:—Hæmoptysis three or four months previously, cough,

appetite very bad, considerable loss of flesh; sleep tolerably good, but night-sweats; no hereditary predisposition to phthisis. This patient, like the last, was in straitened circumstances.

Physical signs.—Left apex: crackling, respiratory murmur very deficient, dulness on percussion more or less throughout on that side. No very marked physical signs on the right side; perhaps slight dulness at base and deficient expansion.

The first inhalation of the carbolic acid spray (20th Nov.)—one and a half grains to the ounce—for half an hour, produced no cough and relieved the dyspnoea. Seven days after he had again used the spray twice; could then walk to my house, from Gray's Inn Road, Holborn, which he could not do before; thinks he coughs and spits as much as before. November 27th, before inhaling—Resp. 28; pulse, 100. After inhaling, for quarter of an hour—Resp. 24; pulse, 100. 29th November—Felt much better on 27th and 28th after last using the spray; cough with expectoration diminished, breathing much easier; cough, however, rather more troublesome last night than on the two nights previous. Inhaled spray—two grains carbolic acid to the ounce—and no morphia for eighteen minutes, when felt somewhat giddy and discontinued it. Before inhaling—Resp. 33; pulse, 122. After inhaling, feeling faint—Resp. 35; pulse, 108. The strong dose of carbolic does not make him cough, but appears to cause a momentary arrest of the respiration, obviously from its action on the heart. Used the spray on the 15th December; on the 16th, cough and expectoration but slight, sleeps well at night, strength tolerably good, losing weight. According to my notes, there was then on the left side no dulness on percussion anteriorly except in axilla; some fine crepitation under clavicle, and no respiration to be heard on that side, but its expansion was very deficient; posteriorly left, some slight vesicular breathing. Right side anteriorly: no dulness, some sibilus, respiratory murmurs, with some harsh breathing. On the 31st of December, expectoration and cough but trifling. 2d January, 1868, had spray with one and a half grains of carbolic acid per ounce, without morphia: as this made him cough I added to the solution one-eighteenth of a grain of muriate of morphia per ounce, which he could then breathe without coughing; after using this for twenty minutes, I again made him inhale the solution without morphia, which now produced no cough. Says the spray stops his breath now

and then, and is obliged to discontinue it for a minute. Before inhaling—Resp. 24; pulse, 104. After inhaling for half an hour—Resp. 29; pulse, 110; weaker. January 10th, used spray—one and a half grains carbolic acid to the ounce—for eighteen minutes, which he had to discontinue from coughing. January 15th, inhaled the solution for twenty minutes. Says that after using spray goes home with hardly any coughing or expectoration, from which he remains tolerably free for that day and night, but towards the following morning the cough and expectoration return much the same as before; is now taking phosphoric acid, iron, and quinine, and picking up flesh again, although his weekly allowance only amounts to 5s. 3d. I now gave him a hand-ball spray-producer with some of the solution (one grain carbolic acid to the ounce and $\frac{1}{12}$ grain muriate of morphia). February 3d, expressed himself much relieved, cough less, and expectoration much diminished; thinks it is only about half the amount of the preceding week; can now walk quite fast without inconvenience to the breathing. February the 7th, much the same. On the left side some respiration now heard, with coarse crepitation and mucous râles; no dulness on that side either anteriorly or posteriorly. Right side, in front: respiration vesicular, normal at apex, lower down harsh, and at base moist mucous râles. He was admitted as an in-patient at the Brompton Hospital in July of the present year, and left at the beginning of October, in but a poor state of health, although the better for the hospital treatment.

This case was relieved by the carbolic acid spray at the time, but the disease was not arrested, and is now progressing.

CASE III.—Harriet C——, aged 23, first seen by me on November 25, 1867. Has been ill for about two years and six months. Maternal uncle died of phthisis. Hæmoptysis at different times. At present, cough and abundant expectoration, dyspnœa urgent, night-sweats. Physical signs: fine crackling all over left side, in front, with very deficient respiratory murmur, and dulness on percussion; right side anteriorly, some vesicular murmur with crackling, resonant on percussion. Breathed the spray with one grain of carbolic acid and one-twelfth grain of muriate of morphia to the ounce. Before using spray—Resp. 36; pulse, 84. After inhaling for quarter of an hour—Resp. 32; pulse, 87. Coughed after the first five minutes,

but not during the remainder of the time. No giddiness or faintness. November 27th—Expectorations less tenacious and lighter in colour; amount expectorated in last twenty-four hours weighs 2,186 grains; less dyspnoea, and cough not so distressing; sleep improved. Inhales spray with one grain of carbolic acid. Before inhalation—Pulse, 80; resp. 29. After inhalation, during twenty minutes—Pulse, 80; resp. 36. No giddiness produced. December 4th—The breathing, which was better after she had used the spray on the 27th, again rather troublesome. The expectorations in last twenty-four hours weigh 1540 grains, showing a reduction of 644 grains. Dec. 7th—Much better in every respect. Last two nights' rest undisturbed by cough, and no sweating. Cough much less in the day-time. Expectorations in last twenty-four hours 1097 grains, or 443 grains less than three days previously. Before using spray (with one grain carbolic acid and one-twelfth grain of muriate of morphia)—Resp. 36; pulse, 90. After inhaling for half an hour—Resp. 36; pulse, 86. Physical signs: left side in front at apex, little or no respiration heard, but no crackling now; along margin of sternum, vesicular breathing with loud expiration, and no crackling or moist sounds; left, on percussion, duller than right side; harsh and tubular breathing in supra-spinous fossa; on the right side nothing abnormal. Dec. 12th—Much the same as when last called; expectorations in previous twenty-four hours, 1375 grains. Has resumed work after an interruption of three weeks. I understand this patient died about last June.

It certainly appears that in the present case the carbolic acid inhalations were beneficial, although not conducive to any permanent improvement.

CASE IV.—Mrs. L——, aged 30, first seen on 25th November, 1867. In delicate health, and the last of eight children. Never any hæmoptysis; night-sweats formerly, but not of late. Physical signs: distinct crackling and respiration absent in supra-spinous fossæ on both sides; respiration harsh at apices in front; has been taking cod oil, iron, and quassia. Spray with one grain carbolic acid and one-sixteenth grain muriate of morphia per ounce, inhaled for fifteen minutes. Before inhalation—Resp. 24; pulse, 68. After inhalation—Resp. 28; pulse, 76; no sensation of giddiness. Nov. 28th—Says she feels much better

since she has used the spray; coughs less, breathing easier, and expectoration much diminished; troubled since yesterday with headache, and a sensation of debility; had carbolic acid spray with one-sixteenth of a grain of morphia per ounce, for twenty minutes. Dec. 4th—Before using the spray, resp. 22, pulse 66; after using the spray, resp. 22, pulse 66. Dec. 6th—Improvement continues in many respects, and feels much better; free from crepitation in both supra-spinous fossæ. Dec. 14th—Coughs less, but still expectorates rather much, and breathing not quite so easy; had spray, one grain carbolic acid and half a grain of morphia to the ounce, for half an hour, with short intermissions. 22d June, 1868—In good general health; menses regular; in both apices anteriorly no respiration; lower down respiration deficient, harsh, though tolerably vesicular; shade of dulness both sides just under clavicle, and at left apex in front chest flattened rather more than at right.

CASE V.—A gentleman, aged about thirty, of a very robust constitution, applied to me suffering from pulmonary symptoms, and particularly desirous of his health being improved, as he was to leave a few days later for India. I first saw him on the 24th of September. On the 29th he was in the same state; right side posteriorly, dulness on percussion, with fine crepitation at base, becoming louder and coarser higher up; very little respiration heard. Same side, in front respiration deficient and harsh, no dulness, expansion fair. Left side posteriorly, between scapular and spine, some slight crepitation, and in front respiration natural. To breathe the spray with one grain of carbolic acid to the ounce, and no morphia, twice a day, for ten minutes at a time; to apply croton oil liniment to the base of right side of the chest, posteriorly, and to take phosphoric acid, iron, and quinine. Under this treatment (I believe the use of the spray was omitted for one or two days), on the 6th of October, the weight of his body had increased by one and a half pounds, and a peculiar click he felt in the right side had quite disappeared; the crepitation at base of right side was nearly gone, and was certainly less, higher up; dulness continued. On his taking a deep breath to cough, air could be heard distinctly permeating the lung vesicles. No crepitation now in left side posteriorly. It is difficult to account for this improved state of the lungs from the mere action of the croton

oil liniment and mixture; and it appears likely that the inhalations had something to do with the favourable change.

I have but two more cases, I think, necessary to report to illustrate the action of the carbolic acid spray in phthisis. The first (CASE VI.) is that of a young man, W. K——, aged 22, in a very weak condition, with extensive dulness and cavernous respiration in both sides of the chest. First seen on the 21st of November, 1867—Resp. 28 per minute; pulse, 143, and much dyspnœa. After breathing the spray of one grain of carbolic acid with $\frac{1}{12}$ grain of morphia per ounce, he felt faint, and I had to give him wine and ammonia before he left me. On the 25th considers himself improved since he used spray; can breathe a good deal better, and expectoration reduced, he thinks, to half what it was when I first saw him. Before using the spray—Resp. 19 to 20; pulse, 118. After a quarter of an hour's inhalation—Pulse, 110. 27th, improvement continues. Before inhalation—Resp. 24 to 25; pulse, 110. After using the spray a quarter of an hour—Resp. 32 to 33; pulse, 128, stronger. 4th of December was nervous, trembling; felt cold and weak for two hours after having the spray the last time; the next day, however, as well as before, with improved appetite, and less cough and expectoration; is losing weight. Before using spray—Resp. 25; pulse, 102. After using spray for ten minutes—Resp. 25; pulse, 132. December 13th—Steel and quinine prescribed; from this date he gradually became weaker, and died on the 5th of March. In this case the spray relieved the main symptoms, but was powerless to bring about an improved state of the lung tissue. I believe, however, that the treatment was instrumental in relieving the distress from the cough and dyspnœa. This patient's life may have been prolonged for some days by means of Richardson's ozonized ether, which he took for some weeks before he died.

The last case (VII.) is that of a female, Jane S——, aged 25, whose father had died of consumption; hæmoptysis nine months previously. There was a cavity, with condensation of tissue, at the apex of right lung; on the left, respiration was very imperfect, and moist crepitation, without the occurrence of any positive dulness, could be heard. Speaks in a whisper for the last five months, and complains of her throat. A laryngoscopic examination showed me the larynx above the vocal chords to be very much swollen, interfering considerably with the opening

of the glottis in the act of respiration. The epiglottis was reduced in size. She inhaled the spray, with one and a half grains of carbolic acid and one-twelfth grain muriate of morphia per ounce, for half an hour, and expressed herself much relieved, breathing being less frequent and fuller. She thought the solution she inhaled none too strong. A few days afterwards again called, and inhaled the spray for half an hour. Breathing much relieved; the respirations fell from thirty-six per minute before inhalation to twenty-eight per minute after using spray. Has coughed but very little since she inhaled the spray on the first occasion. Begs me to lend her a spray-producer, and let her have some of the fluid to inhale in the evening before going upstairs to bed, and I comply with her request. About the 4th or 5th December, on hearing that she was not doing so well, I directed the spray to be discontinued; about that time she began complaining of headache; she rapidly became weaker, and on the 12th was insensible. She died on the night of the 13th.

The question to be now considered is the *modus operandi* of the carbolic acid spray. In most of the above cases a small quantity of morphia was added, but I cannot ascribe the effects of the spray to this substance—first, because of the small proportion which it contained, and next, because I have frequently used the spray without morphia and obtained similar results. The action of the carbolic acid on the respirations and pulse is varied to such an extent that I have arrived at no positive result on those points. Taking together the whole of the results obtained from the present inquiry, it appears to me that carbolic acid inhaled in the form of spray for the treatment of phthisis acts beneficially by improving the circulation in the lungs; hence relieving the dyspnœa, arresting the effusion of fluid into the smaller bronchi and air-cells, and favouring afterwards its absorption into the blood. The first chronic stage of phthisis with plastic effusion may apparently be prolonged by the use of the spray, from its checking more or less the setting in of the process of softening, and by improving the circulation it may favour the absorption of this matter; but when softening has fairly commenced, and vomicæ have formed, with acute general symptoms, the spray, although it certainly relieves the distress owing to the dyspnœa, does not appear to be productive of benefit, and I think should be withheld.

ON BLOOD-LETTING AS A POINT OF SCIENTIFIC PRACTICE.

AN ADDRESS INTRODUCTORY TO THE NINETY-FIFTH SESSION
OF THE MEDICAL SOCIETY OF LONDON.

BY BENJAMIN W. RICHARDSON, M.D. F.R.S., PRESIDENT.

GENTLEMEN,—I cannot open this address more plainly than by expressing the conviction that blood-letting, when the time and case for resorting to it are understood, is one of the most truly scientific remedies we have at our command; that it produces effects as patent to the eye, as convincing to the reason, as any known remedial measure. I believe that were blood-letting, in this day, an unknown remedy, and were some man to discover it, we should receive that man as of the greatest amongst us, and send him to posterity as one of the lights of the age.

In considering blood-letting as a point of scientific practice, I shall best draw near to the subject, and unfold it, by glancing at the real cause of the decline of the practice.

Various causes have been assigned for this decline. For my part, I trace the change as connected with natural fact in the progress of all science, and as linked with the early stage of transition from the pure empirical system of observation to the system of reasoning on safe and comprehensive experimental truth. So long as the dogmatic experience of the one master was alone sufficient to determine the practice of the thousands of disciples, so long there was unquestioned empiricism of practice against which it were illegal to stir: thus line upon line, and precept upon precept, dogma became so firmly built, that the man who could remember the largest number of recipes of eminent men, *masters*, became the most eminent,

and was, in turn, master himself. The gradual introduction of chemistry, physiology, and pathology into physic, after long and severe trial, began at last to tell against dogma; and as therapeutical dogmas were the head and front of the offending, in the pure empirical school, down they came first with a crash. In this crash, not blood-letting only, but every other idol fell. It was a necessary act of indiscriminate violence, and in the main we are the better for it, inasmuch as we can now reconstruct without being tied to any particular conceit, or prejudice, or antiquity.

The first of the idols that fell, as the practice of medicine began to feel the attraction of chemistry and the allied sciences, was blood-letting. This was the most ancient idol, the longest abused; from the time of Hippocrates himself to our own time, it had had but one really potent enemy. In the era of Leo the Great (A.D. 457-74), Jacobus Psychrestus, a man of such distinguished fame as a physician that a statue was raised to him at Athens, opposed bleeding, and had his followers; but the influence of this man, tense as it was, soon died away, and the practice rose, if anything, into greater favour, which favour it retained until its fall—a fall, by comparison with its preceding history, abrupt, sudden, wonderful. A practice of at least twenty centuries of growth, a practice almost universally believed in by the learned professors of physic, and as fully and heartily acknowledged by every section of the community, sank in a quarter of a century into worse than obscurity—into discredit, and even hatred. Is it possible that twenty centuries were grossly abused by the infliction of what, in the present state of feeling, were, on occasions, akin to a crime? I believe not. Our predecessors saw cases in which results, in these days startling and almost miraculous, were achieved by the abstraction of blood. These results were at once encouraging and misleading—encouraging, in that they promised a remedy universal, on the *à priori* principle, in its application; misleading, in that the nature of the symptoms being neglected, on the considerations suggested by the practice, the practitioner was led to inquire, not whether the case was suited for bleeding at all (the suitability being admitted), but whether the method of carrying out the bleeding was suited to the case.

In these days we have departed from the principle of studying remedies in detail, to study symptoms and morbid structure in detail. But we have found it necessary after all to come back to therapeutics ; we have found that Nature, left to her own devices, though she may be trusted when we, partners with her, have learned the extent of her curative skill, has no fixed design of cure applicable to all cases—that she does not, for example, cure a man of heart disease when she glues down his pericardium to his heart, and that she leaves us indeed sufficient of useful and necessary curative work to fill all our time, if we will have patience and industry to do what she, going ruthlessly her own way, lets remain undone.

Re-entering the field of therapeutics by necessity, we shall have again to study blood-letting as a point of scientific medical practice. As preparatory to such study, let us glance at what blood-letting in the hands of the ancient masters really effected.

Firstly. The ancients discovered that blood-letting reduced over-action, and that grand symptom of over-action, or accumulation of animal heat. For this reason they resorted to blood-letting in every case of fever, and not only bled freely at the moment, but often repeated the process on return of heat or excitement. The question is, how far the application of this discovery is sound and judicious practice ?

Secondly. The ancients knew that when from any sudden calamity the vessels of the body are brought under undue tension, as from exposure to heat, or from local paralysis of vessels, the abstraction of blood is the readiest means of restoring the equilibrium, and of taking off the general or local tension. This was a true discovery. The question is, how far the application of this discovery is sound and judicious practice ?

Thirdly. The ancients discovered that the slower congestions of visceral organs, as of the brain, lungs, liver, or kidneys, were removed by the abstraction of the blood. They did not, it is true, differentiate, as we do now, between one kind of congestion and another. They did not know that some cases of apparent congestion of the brain were cases in which the primary arrest of circulation commenced in the kidney ; but they knew the general fact of congestion, and they saw relief from abstraction

of blood. In these cases, indeed, they held a truth which more than all others supported them in their practice. They beheld what in these days is very rarely seen—men stricken down insensible and comatose, but, recovering from insensibility, regaining reason and regaining muscular power, while blood was flowing freely; and as what they saw the people also witnessed, there was common accord that in these examples the lancet was the sovereign remedy. The question is, how far the application of this discovery is sound and judicious practice?

Fourthly. The ancients discovered that by the abstraction of blood acute pain, especially pain having its seat in the serous membranes of the organism, was speedily and often effectually removed. Galen tells us with perfect simplicity and evident truth, how, being seized himself with severe pain near the diaphragm, he opened the artery between the thumb and the forefinger, and drew off a pint of blood, by which his pain was instantly relieved, and, as he thinks, his life saved; and he relates, upon this, that he cured a priest, by the same operation, of a desperate pleurisy. The testimony of all the ancients, in short, is of the same kind, although the method of abstracting blood varies in detail. The question is, how far the application of this discovery is sound and judicious practice?

Fifthly. The ancients discovered that the pain arising from muscular spasm is quickly removed, in many cases, by blood-letting. Their physicians tell us, over and over again, of the sudden relief from the pain of passing a gall-stone, after venesection, and their surgeons inform us that in obstinate spasmodic stricture of the urethra, the easiest and safest first step, towards relief by the catheter, lies in the abstraction of blood. Their surgeons instruct us, moreover, in cases of difficult reduction of a dislocated limb, and in hernia, to reduce muscular resistance by withdrawing a few ounces of blood. The question is, how far the application of this discovery is sound and judicious practice?

Sixthly. The ancients discovered that in some cases in which the motion of the blood is suddenly arrested, as from concussion, the establishment of a current of blood from a vein restores the general motion of the blood, and that the pulse, previously imperceptible, will rise as the blood flows. The question is, how

far the application of this discovery is sound and judicious practice?

Seventhly. The ancients discovered that when in a full, gross body there is inequality in the action of the heart, and obstruction within the heart, the abstraction of blood will remove the palpitation, and this particularly where the irregular action or palpitation occurs on the arrest of some natural flux, such as the menstrual flux of women. The question is, how far the application of this discovery is sound and judicious practice?

Eighthly. The ancients discovered that in certain forms of convulsive disease the excessive muscular action is relieved by taking blood. They further knew that attacks of convulsion, coming on periodically, may be prevented frequently by an early resort to the same remedy. The question is, how far the application of this discovery is sound and judicious practice?

Ninthly. The ancients discovered that in certain acute cases of hæmorrhage the abstraction of blood stopped, as they thought by diversion, the hæmorrhage. The question is, how far the application of this discovery is sound and judicious practice?

Lastly. The ancients never discovered, what we moderns think we have, that there is great danger to life in the careful abstraction of blood from the animal body. The question is, whether on this point they or we are most correct?

With some care in the study of the works of those who have preceded us, men not less earnest, not less conscientious, not less observant than ourselves, I have epitomized the salient points in the history of blood-letting. I proceed forthwith to take up these points *seriatim*, and as impartially as I can to answer the simple questions they suggest.

In respect to the application of blood-letting for the removal of over-action, and increase or accumulation of heat, the ancients had a strong case. We know that to remove blood is to reduce the animal heat, as we know that to take out the burning fuel from the furnace of the locomotive is to reduce the motion. We know further, if we have ever bled when there is over-action and increase of heat, that frequently the relief obtained is instant; that secretion is liberated by the process, and that the happiest results follow. The error of the ancients was that they

proceeded from a particular to a general; that they did not distinguish between increased action from inflammatory local disease and the heat of general disease: and that they did not correctly interpret the meaning of reaction: they did not know, I mean, that reaction is the return of blood into vessels reduced in tone. This generalization, therefore, led them into error, but it did not alter the particular fact that in some cases the remedy is successful on the most rational grounds. To this day the truth remains, that a free abstraction of blood in the early stages of fever, and of acute inflammatory action, is a certain means of affording relief. I have seen it cure in pure inflammatory fever; but the time when it would be useful is rarely seen by the physician, and the first stage passed, the remedy is an evil.

In advanced inflammatory fever there is, as a necessity, a determination towards separation of fibrine and deposit in the circulating canals, and this tendency blood-letting distinctly favours. Thus there is hazard about the act, and what is hazardous is here unsound, because we have what the ancients had not—other and less hazardous expedients at command. We have learned that in many cases the over-action will safely wear itself out; we have learned that we can reduce over-action by increasing the evaporation of water from the body; we have learned that we can reduce over-action by the use of cold; and lastly, we have discovered, what will one day be more important in practice than it is now, that we can check animal over-action, not only by taking the burning fuel out of the veins, but by modifying the combustion of the blood itself, by making the patient inhale an air charged with vapour that checks the combination of blood and oxygen. Many years ago I reported in this room some cases of acute inflammatory croup, which had been successfully treated by the continuous inhalation of air containing the vapour of ether; and, whenever the chemist supplies us with a volatile agent which shall possess the alkaline properties of ammonia, without the irritating properties of that substance, we shall have all that we require for reducing over-action on the one hand, and preserving the fluidity of the blood on the other.

Without condemning the ancients then, who acted accord-

ing to their lights, I am inclined to think that blood-letting may be let pass, as a remedy of the past, in acute inflammatory fever, and I would extend this to all the exanthemata and fevers in their acute stages—one excepted. I believe still that blood-letting is of distinct service in typhus when there is great excitement with insensibility, excessive heat, and extreme vascular tension. In this opinion I shall be supported, I believe entirely, by my friend Dr. Alexander Stewart, whose researches on fever, and on the distinction between typhus and typhoid fever, so singularly little known, are, in my opinion, amongst the most valuable of our time. I knew a case of extreme typhus where all seemed hopeless, when suddenly, as if to yield the victim to his inevitable master, on the eighteenth day of the disease there was gush of blood from the nose, which continued with a vehemence uncontrollable, but which, with the exhaustion it produced, stopped of itself, not with the death of the patient, but with his return to entire consciousness, followed by rapid recovery.

In respect to the use of blood-letting for the removal of sudden tension of the blood-vessels, general or local, the ancients again had a strong case. Indeed, in this instance, I think their practice still holds good. It requires to be observed to be accepted. I remember seeing a man brought out of the harvest-field insensible from sunstroke. He was, to external appearance, as nearly devoid of life as it were possible to imagine; but there was breathing and tight pulse, and tensely expanded veins. He was brought to the surgery of a well-read practitioner of the old school, one who purchased his practice when the fees for “spring and fall bleeding” were an important item in the receipts of the year. With my friend there was no sort of hesitation. The man was carried into the garden, held up in a Windsor arm-chair, and bled at once from both arms. At first the blood trickled, then ran, then sprang forth in bold stream, filling rapidly a pint basin on each side: fresh basins were brought, and still the blood was allowed to flow, until the features were a little pale, and the muscles were in motion. Then one arm was tied up, and soon afterwards the other. By this time nearly four pints of blood having been drawn, the man was truly a faint, staggering man, but he was no

longer insensible. He knew where he was, he drank water, he asked to lie down in the cool, and in half an hour he was walking home with the assistance of a friend, a man cured. Results like these have recently been obtained, I believe, in America, after sunstroke. They are facts which carry with them reasonable explanation. What can be more reasonable, when from any cause, heat of the sun, heat of rage, or other similar cause, the vessels of the brain are bursting from the tension of blood and of vapour of blood, than to take off that tension by the only means at command, abstraction of blood. The physician who will not do this, but will resort to friction and other secondary measures, is to me like an engineer who, seeing that his pressure is such that the safety valve is getting uneasy, should be content to throw all his energies into polishing his brass-work, instead of letting off his steam.

I hold with the treatment of the ancients in cases of sudden tension of blood. The body livid, cold, motionless, senseless, but with deep hard breathing, slowly acting, strong heart, and tense vein, is a body to be relieved by blood-letting, and by that alone.

In respect to the use of blood-letting for the removal of chronic congestion, the practice of the ancients requires revision and curtailment. I have already said that in regard to these congestions, they were obliged, from their limited knowledge, to generalize, and that this led them into error. We have, however, one form of congestive disease particularly demanding serious study, in relation to the ancient practice; I mean the congestion incident to uræmia uncomplicated with dropsy. In cases of uræmic poisoning, when the coma is fully developed, and the patient is unconscious, and the skin hot, and the convulsion strong, and the suppression of urine nearly perfect, there is no remedy so swift, so sure, so useful, as the lancet. To blister, to purge in such cases, as primary measures, is trifling with death.

To bleed is to remove tension from the brain; to relieve congestion of lung, and set the breathing free; to remove pressure from the labouring heart, and to ease the congested kidney of the load that embarrasses it. These are great points gained,

but there is another greater: when we take away blood charged with active narcotic poison, urea, we for the moment actually supplement the kidney, and effect its office. I could show that we have experiment to guide us here, and that of two animals, each with the function of one kidney suppressed, the one shall die if left alone, while the other shall recover if, when the coma and convulsion of uræmia appear, there be abstraction of blood: but I would rather rest on practice for evidence. Since the year 1862, I have seen many cases of acute uræmic poisoning, in which various measures have been tried. I have seen some in which blood-letting has been resorted to, and which have not recovered, but I may add that I have seen the worst cases recover after blood-letting, and I have never seen a recovery without that remedy. Here again the effects of the remedy have to be observed to be fully accepted. In two cases of uræmic coma, when recovery seemed out of the question, I have bled from the arm, and have seen entire consciousness from the profoundest insensibility appear, while the blood was flowing. In one of these cases the patient was a child of eight years old; in the other the patient was a man over seventy. In both convulsions ceased and the pulse rose during the depletion; and although from the boy sixteen ounces of blood were taken, and from the aged man, twenty—eight by the cupping-glasses over the loins, and twelve from a vein in the arm—there was not the least trace of syncope.

In acute uræmic cases, then, in which there is no form of dropsical effusion, I affirm that blood-letting is the soundest and surest line of practice. There is no fear in simple uræmia of deposit of fibrine upon blood-letting, and the remedy, instead of acting as a depressant, relieves obstruction, gives facility for motion, and in fact, by the freedom it gives, supplies what is equivalent to power. Dr. Hughes Bennett has recently put on record a precisely similar opinion, based on evidence precisely the same.

There are other cases of a simpler kind, cases of uncomplicated congestion of the brain from want of power in the vessels to bear at all times the impelling stroke of the heart. The cases are marked by occasional vertigo, sometimes by stupor, and on rare occasions by temporary paralysis. In

them the abstraction of eight or ten ounces of blood, either by the lancet or the cupping-glass, surpasses every other kind of treatment. The first time I ever saw blood extracted was in a case of this nature, and I remember well that nothing saved me from delirium myself but the sudden recovery of the patient from restless moaning convulsive torpor, to the free use of her intellect, and to the return of her muscular power, so that she could look round, ask who the strangers were, and affirm that she felt pain. In these cases I am bound again to uphold the practice of blood-letting. Nothing in moments of urgency takes its place, and I doubt if anything ever will.

In respect to the application of blood-letting for the relief of acute pain from the membranes, especially the serous membranes, as described by Galen, the ancients once more had a good case. I have seen pleuritic pain of the acutest kind give way to the lancet as distinctly as the pain of a tooth from the removal of it. How such a safe and instant means of relief in cases of pleuritic peritoneal and deep cerebral pain should ever have been allowed to go out of favour I cannot imagine. Nothing replaces it: the blister is slow, and often ineffectual; an opiate is slow, and causes great disturbance; volatile anæsthetics are only temporary in their action, while bleeding is quick, simple, safe, effectual. In these cases, moreover, the practice is rational. There is a sensitive surface the circulation of which is embarrassed; the fluid it should give up is not secreted; there is dryness, heat, pain. What more natural than to relieve the embarrassment by reducing the force of the heart and the volume of blood.

In the application of blood-letting for the relief of spasmodic pain, the ancients had also a good case. I was one day called to a man who was bearing the martyrdom of the passage of a gall-stone. I tied up his arm, bled until there was indication of syncope, and the pain was gone. I could multiply these cases and add others similar, in which the relaxing power of venesection was successfully practised without the remotest danger to life. Here, however, it may be urged that we have general and local anæsthesia at com-

mand. I admit the fact, and I am bound to say that for reduction of hernia, and even for the relief of the pain arising from gall-stone, I have seen such good effects from local freezing that I should never bleed in such cases until I ascertained the effect of the local abstraction of force. But if the local means fail, and the question become one of abstraction of blood to relaxation, or the administration of an anæsthetic to the fourth degree of narcotism, then were I the patient I should prefer the blood-letting. It is a more effectual plan to adopt ; it is not more disagreeable, and, as I think, it is safer at the time.

I would, however, differentiate between these spasmodic cases, and cases in which muscular relaxation is required for reducing a dislocation or breaking up a joint. In these instances where a prolonged and painful operation is required, the general anæsthetic is the remedy.

The practice of the ancients of letting blood immediately after concussion or stun has been more roundly abused in modern times than any other part of the practice. I confess I do not know why. The ancients held that when the motion of the blood was suddenly brought to a stand it was sound principle to reproduce motion even by what they called diversion or derivation. In truth this is sound mechanics, and not only so, but it answers. In the objections I have read against this practice, I have never met with a single clear fact against it. I can find no cases in which men suffering from concussion died from the bleeding as distinct from the concussion ; but I can recall an experience in which a woman, who had been run over at a racecourse, and was brought well-nigh pulseless and insensible to an inn two miles away, did recover, as blood was induced to flow from her arm, as distinctly as the basin caught the blood and the fillet held the vein. This experience tallies with what the earlier writers said regarding the practice : it tallies with the experience of concussions from wounds with, as distinct from concussions without, accidental hæmorrhage ; and assuredly there has been never anything shown, on evidence, a tithe so cogent against it.

The influence of venesection in relieving the heart in certain

cases of plenitude of the system is an observation of the ancients sound and full of practical wisdom. We are in a position of advantage when compared with them on this point, for we can physically examine the heart, and can select in a manner they could not. But this we constantly find, as they did before us, cases of large heart, with increase of size of right ventricle, in which, on the suppression of respiratory power, or of the function of the skin, there is embarrassment of the heart, palpitating struggle—what we may really call congestion of the heart. There may be symptoms approaching even to syncope in these cases; but for all that the readiest mode of relief is to take off the central oppression, by the abstraction of a few ounces of blood. A lady under my care had blood removed from her two and sometimes three times a year to meet this oppressing, nay, I may say appalling, condition; and the remedy never did harm, and what is more, it never failed to give relief. “Now I breathe again,” was her constant reply, as she felt the oppression subside. She lived to sink under pure senile decay. I regret nothing more than that I once saw, in a similar case, the doubt, the prejudice against venesection so declare itself, that a man I much esteemed was permitted to struggle in the most painful manner to death; the remedy that alone could relieve him being at immediate command, but disallowed.

The practice of the ancients, of treating convulsion and periodic convulsion by abstraction of blood, was good and bad. Unconscious of the fact that convulsive action is the transference of so much potential energy into motion, and that the convulsion itself means ultimate exhaustion, they naturally mistook convulsion for power, and endeavoured to remove it by exhausting the more. This part of their practice is open possibly to censure. But when they resorted to blood-letting to ward off attacks of a convulsive nature they were on safer ground, for then by direct exhaustion they anticipated the exhaustion of convulsion, and often averted it. I could confirm the truth of this by direct narration of fact; and although the method is faulty in that it is not curative but palliative, and as palliative demanding frequent repetition, it is, as it seems to me, a palliative the surest of all, nor less safe than any.

The practice of arresting hæmorrhage by the abstraction of blood, a practice almost universal at one time, although at first sight appearing contradictory and mischievous, and although explained by the ancients incorrectly, has nevertheless a sound physiological meaning. We know now that the tendency to coagulation of the blood increases with loss of blood, and that increase of fibrine marks progressive hæmorrhage. We know also that to secure the sealing up of a bleeding vessel there is nothing like rest, and that the comparative inertia of syncope is itself useful, sometimes necessary. If we are candid observers, how constantly do we see all our efforts to stop hæmorrhage fail us utterly until the very exhaustion of the patient comes to our aid. The ancients, conversant of this same truth, thought it wise to bring on this curative exhaustion quickly, and that they succeeded, as a rule, is beyond doubt. We have better means at our command for stopping the flow of blood, and their grand remedy may either be set aside, or reserved for special or extreme cases—a last reserve: but it demands remembrance.

The confidence of the ancients in the practice of blood-letting, their fearlessness of any immediate danger from it, was, I believe, as well founded on truth as the cowardice and assertion, without observation, of the present day is founded on error. That by repetition of blood-letting, that by slow, by long blood-lettings mischief was done, I doubt not; that by indiscriminate generalization mischief was done, I doubt not; but that it is in any way fraught with danger to take, in a properly selected case, from one to three pints of blood from an adult, I deny. Within the last month I have seen a hæmorrhage from the roof of the mouth, owing to disease of the bone, in which the patient lost at once six pints of blood, and recovered without a dangerous symptom.

To sum up, I would recall that blood-letting, as a point of scientific practice, is still open to us in some stages of typhus fever; in cases where there is sudden tension of blood, of which sunstroke is an example; in cases of chronic congestion of brain; in cases of acute pain from serous membrane; in some classes of spasmodic pain; in cases of sudden arrest of circulation from concussion; in cases of congestion of the right heart; and, it

may be, in extreme cases of hæmorrhage. Above all, I claim for it a first place in the treatment of simple uræmic coma.

I have not, gentlemen, brought forward this communication without much thought, tinctured, perhaps, with anxiety. I know that the views I have expressed may carry weight, not as coming from me individually, but as coming from the President of this Society. I know that in some quarters I shall be considered as bringing back what has been felt to be an evil; but I, who have seen men die because prejudice has prevented the application of the only remaining means of saving life, am not the man to shrink from the responsibility I have accepted. And this know I also—a grateful knowledge—that you, though you may differ from me, will receive what I have spoken with the same spirit of conscientiousness as that in which it is offered to you for approval or for condemnation.

THE ACTION OF NARCEINE OR NARCEIA.

BY JOHN HARLEY, M.D. LOND., F.R.C.P.

MUCH confusion exists with regard to the properties of this substance, as will appear from the following statements:—

(a) M. Claude Bernard¹ regards narceine as “the most somniferous substance of opium;” and as a soporific he therefore places it first, and morphia second. “In equal doses,” he states, “it causes a much more profound sleep than codeia; but animals are not, however, stupified by a leaden sleep, as with morphia, and they remain quite alive to painful sensations. That which characterises the narceic sleep is, that it is calm and profound. Dogs reduced to a profound sleep of several hours’ duration make no resistance when hurt; and if they complain, they do not seek to escape or to bite. I injected,” he says, “from 7 to 8 *centigrammes* (= 1·2 grain) of *narceine*, dissolved in 2 *centimetre cubes* (= 38 grain measures) of water, beneath the skin of a dog. At the end of about a quarter of an hour the animal was taken with a sleep so profound that I was obliged to produce the animal at the next meeting, in order to convince the President and some members of the Society that the dog was not dead.” He concludes that narceine is free from any excitant or convulsivant action, and remarks that after a poisonous dose animals die in a state of muscular relaxation.

(b) Dr. Béhier² of the Hôpital de la Pitié, in applying the results of Bernard’s experiments to therapeutical uses, gave

¹ Bulletin gén. de Thérapeutique, tome lxvii. 1864, p. 193, and Compt. rend. Acad. des Sciences, 1864, tome lix.

² Bulletin gén. de Thérapeutique, tome lxvii. 1864, p. 151, and Annuaire de Thérap. Bouchardat, 1865.

narceine to a number of his patients. Except in two cases, the narceine was given by mouth in the form of pills, and in the two cases ℥xx to ℥xxx (= gr. $\frac{1}{2}$ to about $\frac{1}{3}$) of a solution of 1 part of narceine in 100 of distilled water was used subcutaneously. The results were as follow: The injections calmed pain, but invariably caused dysuria. Given by the mouth, it allayed cough and diminished expectoration. With females it sometimes determined vomiting at the moment sleep was interrupted.

(c) Dr. Debout¹ used a solution of narceine in syrup, in the proportion of 0.15 of a grain to half an ounce. He took it in increasing doses, and found the hypnotic effect commenced when the dose reached half a grain. "The sleep," he says, "is calm and interrupted by the least noise; but one goes to sleep again immediately. On awaking there is freedom from the heaviness of the head experienced after the use of morphia," and there is less liability to vomiting and constipation. The whole of the effect is limited to a somniferous influence, and its *calming and hypnotic* effects are *superior* to those of *codeia*, and *almost equal* to those of *morphia*. It has no influence upon the respiratory movements. When the dose exceeds $\frac{3}{4}$ of a grain, it causes some dysuria.

(d) Dr. A. Eulenberg² administered hydrochlorate of narceine in doses of $\frac{1}{6}$ to $\frac{1}{2}$ grain by the stomach, and $\frac{1}{8}$ to $\frac{1}{4}$ of a grain by the subcutaneous tissue, and found it serviceable as a sedative and hypnotic. He considers it a valuable remedy in cases where morphia is not tolerated, or in which it has lost its power. He could discover no effects upon the urinary organs.

(e) Dr. Liné³ concludes that narceine possesses the greatest hypnotic power of all the alkaloids of opium. In equal doses, neither morphia nor codeia produces a sleep so prolonged and complete as narceine. *Anuria* is so constant a result of its use that he recommends it in *enuresis*.

(f) Dr. J. M. da Costa⁴ gave a solution of narceine in water acidulated with hydrochloric acid, in doses varying from $\frac{1}{2}$ a grain

¹ Bulletin gén. de Thérapentique, tome lxvii. 1864, p. 145.

² Schmidt's Jahrbücher der gesammten Medicin, August and October 1866.

³ Journal de Pharmacie et de Chimie, 1866, Sér. iv. tome iii. p. 386.

⁴ Pennsylvania Hosp. Rep. 1868, p. 177.

to $2\frac{1}{2}$ grains, by the stomach, and found that it did not produce sleep ; that in the same doses as morphia it is totally destitute of soporific and anodyne properties ; that in larger doses it is uncertain, and often probably inert ; that it has no influence upon the pupils, and is destitute of any excitant action.

(g) Dr. Oettinger¹ regards narceine as a pure hypnotic. He states that it causes muscular weakness, sleepiness, and, in a slight degree, obtuseness of sensation, and also in small doses retardation of the pulse. As a substitute for morphia, it may be given by the mouth in doses of half or one grain in powder or in solution. It is unsuitable for hypodermic use, because there is no combination in which it is readily soluble in warm water, and thus rendered fit for introduction by one injection ; and the solutions at present used cause great pain and irritation.

Apart from the discrepancies which appear on reading over the above statements, a primary question arises as to the identity if not purity of the drug employed. One need not hesitate to conclude that the substance used by Bernard was not Pelletan's narceine. His own words are conclusive on this point. "La narceine," he says, "étant plus soluble [than morphia and codeia], je l'ai souvent employée directement dans des solutions [1 part in 20 parts of water] à la même dose." (Op. cit. p. 194.) Again, he used a solution of 1 part of narceine in 38 parts of water in the experiment upon the dog.²

Dr. Béhier, we have seen, recommends a solution of 1 part of narceine to 100 parts of water. And yet both of these investigators appear to have been in possession of narceine of acknowledged purity, and prepared by the same manufacturer as that employed by Dr. Debout.

Dr. da Costa is, I find, equally perplexed upon this point ; and he thinks that the activity of the narceine employed by Béhier is due to admixture with codeia, which greatly increases the solubility of narceine.

Mr. T. Smith of Edinburgh informs me that meconine makes narceine more soluble ; that these two principles separate to-

¹ Schmidt's *Jahrbücher der gesammten Medicin*, August and October 1866.

² By the action of HCl. on narceine, Anderson obtained a crystalline substance easily soluble in water and alcohol ; but this is quite distinct from narceine. (See Gunten's *Chemistry*, vol. xvii. p. 600.)

gether from the solution containing them; and that if the mixture of the two be not thoroughly extracted by æther, the narceine obtained is impure, and much more soluble than it should be. Mr. Smith has kindly furnished me with a sample of pure narceine prepared by himself. My investigations have been made with this and another specimen of pure narceine prepared by Messrs. Morson and Son of London. Both were soluble in about 300 parts of cold water, required still more alcohol to effect their solution, and were altogether insoluble in æther, thus agreeing with Pelletan's original description of this substance. In endeavouring to form a solution sufficiently strong for subcutaneous use, I have tried a variety of fluids as solvents, and have found that glycerine is most suitable for this purpose. At a temperature of 212° Fahr. 1 part of narceine dissolves readily in 33 parts of Price's glycerine. On cooling to 60° or thereabouts, one half of the narceine is deposited. At a temperature a little above 212° narceine is soluble in 12 parts of glycerine; and if one or two drops of strong hydrochloric acid be added to 3j of the warm mixture, there will be no separation of the narceine on cooling, and the acid solution will remain as bright and colourless as the glycerine itself. The following are the solutions which I have used:—

Solution 1.—Narceine, 5 grains.

Hydrochloric acid, 10 minims.

Water, 10 fluid drachms. Dissolve by the aid of a water-bath.

120 parts contain 1 part of narceine. If more narceine be used, it separates on cooling.

Solution 2.—Narceine, 5 grains.

Price's glycerine, 70 minims.

Hydrochloric acid (sp. gr. 1.17), $1\frac{1}{2}$ minims.

Water sufficient to make the whole measure 100 minims.

Heat the narceine and glycerine together with agitation for a minute over a spirit-lamp, and to the clear and bright solution, while still warm, add the hydrochloric acid diluted with the water (about 25 minims). Twenty parts of the solution contain 1 part of narceine. Both of these solutions are suitable for internal use. No. 1 is too weak for hypodermic use, while

No. 2 is perhaps the strongest and least irritating that can be formed for this purpose. Both solutions are freely acid, and, when introduced beneath the skin, cause a little smarting and sufficient irritation, subsequently, to produce a little inflammatory hardening of the integument. Abscess is liable to follow their use in those liable to suppurative action. If it be thought necessary, Solution 2 may be diluted with a little warm water before it is injected.

The following are my own observations on the action of pure narceine in the forms above given :—

On the Dog.—I first of all repeated Bernard's experiment, and injected beneath the skin of a beagle dog Mxxv of Sol. 2 (= 1.25 grain narceine). I watched the animal carefully for two hours, but no effect whatever followed. At the end of this time I injected beneath another part of the skin a quantity of the solution equal to 3.75 grains more of narceine, making in all 5 grains, and kept the animal under observation for the following twelve hours. Throughout the whole of this time a stranger would have failed to recognise any effect, but the drug certainly exercised a tranquillizing influence. When all was quiet, the dog lay down and became quiet too, and occasionally appeared to be sleeping lightly. But if I moved my chair, he would get up and frolic around me, and the slightest invitation would bring him up to me with a full bound. The pulse, pupils, and tongue remained unchanged. Fæces and urine were passed before the first injection, but there were no evacuations between this time and the fifteenth hour. At the sixth hour he ate a hearty dinner. Three days afterwards a little abscess burst in the site of the second puncture. Besides this there were no after effects.

On the Mouse.—Injected $\frac{1}{10}$ of a grain (Sol. 2 diluted) beneath the skin of a young male mouse. Respirations 160. After four minutes he became drowsy. In ten minutes the movements were slow and clumsy, and he ultimately rolled over on the side. R. 104, regular; eyes nearly closed, pupils dilated. During the next three minutes the R. gradually fell, and the little animal at last began to gasp, and so died eighteen minutes after the injection, lying quietly on the side, and flaccid, without experiencing the slightest convulsive move-

ment, or voiding any excreta. The chest was opened *three minutes* after the breathing had ceased. The lungs were collapsed above and behind the heart, and of a salmon colour. The right heart was distended with black fluid blood; the left contracted. Both ventricles were contracting 32 times a minute, and continued to do so for the next seven minutes. The left auricle was empty and contracted, and had ceased to pulsate; the right auricle was pulsating faster than the ventricle; and on relieving it of a little blood, the pulsations were increased to 130 a minute. After a short time they slowly decreased, and finally ceased *twenty-four minutes* after the death of the animal.

On Man.—I have frequently administered narceine, *by mouth*, in the solid form and in solution, and in doses varying from $\frac{1}{2}$ a grain to 5 grains. I have given it to people of different constitutions, and in the largest dose mentioned, an hour before breakfast, and when the body has been at rest, but it has failed to produce the slightest hypnotic or any other effect.

When given *by the skin*, it has always had a quieting, and usually a slight hypnotic, effect. In doses of $\frac{3}{4}$ of a grain to 1 grain, the hypnotic effect in some individuals equals that of the $\frac{1}{8}$ of a grain of acetate of morphia. Dysuria has never been a consequence of its use in my practice. I give the following details of two observations, upon individuals in whom the effects of opium had been previously determined:—

Obs. 1.—Injected $\frac{3}{4}$ of a grain of narceine, ℞v Sol. 2, diluted with ℞v warm water, beneath the skin of Samuel M—, an able-bodied man. Pulse 72. Respirations 20. Pupils $\frac{1}{8}$. Tongue moist. After *fifteen minutes*, felt comfortable and sleepy. After *forty-five minutes*, was very sleepy, but had not slept. P. 72, unchanged. R. 19. Pupils unchanged. Experiences the same kind of sleepiness as after morphia. After *two and a quarter hours*, had slept $\frac{1}{4}$ of an hour, and was still sleepy. P. 70. R. 17. Pupils, tongue, and force of pulse unchanged. He now passed, without the least difficulty, 3ivss of normal urine, sp. gr. 10·20. This had been secreted during the two and a quarter hours that followed the injection. He walked home, a distance of two miles; and, as it was 11 P.M., went to bed and slept soundly. Excepting the formation of a tender swelling at the seat of puncture, there were no after effects.

Obs. 2.—Injected ℥xx Sol. 2 (= 1 grain narceine), diluted with an equal quantity of hot water, beneath the skin of John L——, æt. 54, an able-bodied but weakly man. The hypodermic tremor soon disappeared. A calm, comfortable feeling, with a slight tendency to sleep, followed in about a quarter of an hour, and continued for four or five hours; but the hypnotic effect was less than in the preceding case. The pulse, pupils, and tongue were unchanged; and although the patient was liable to retention of urine, and required to be relieved by catheter on two occasions after the injection of cryptopia, no retention or dysuria followed this or two previous doses of narceine.

The injected part remained tender and a little puffy for two days.

I conclude (1) that narceine is a *pure hypnotic*, but that its action is so very feeble that 5 grains or more are required to induce a slight tendency to sleep, when the medicine is given in powder or solution by the stomach; and that, when introduced by the skin, 1 grain is equivalent to only $\frac{1}{5}$ of a grain of morphia at most. (2) That it is impossible to reduce this quantity to the state of a non-irritating solution of such bulk that it may be introduced by one or two punctures, without risk of inducing subcutaneous inflammation. (3) Granting that an efficient dose may be introduced beneath the skin without inconvenience, evidence is wanting that it possesses any advantage over morphia. (4) That narceine is, therefore, practically useless as a medicine. (5) Narceine kills by depressing and ultimately paralysing the respiratory movements.

ON THE EMPLOYMENT OF BELLADONNA IN SURGICAL AFFECTIONS.

BY CHRISTOPHER HEATH, F.R.C.S.,

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THE use of belladonna in the practice of surgery appears to be almost entirely limited by the majority of practitioners to its employment for producing dilatation of the pupil in cases of iritis, and as a placebo, in the form of a plaster, for lumbago and other chronic pains about the trunk. Having for some years given a much more extensive trial to this drug, and with very satisfactory results, I wish to bring the subject under the notice of the profession.

In the *Lancet* of August 9th, 1856, Dr. Goolden, of St. Thomas's Hospital, directed the attention of the profession to the fact, then little recognised, that the extract of belladonna smeared over the areola of the breast of a suckling woman had a marked effect in arresting the secretion of milk. Following up this suggestion pretty extensively in dispensary practice, I was led to apply the extract of belladonna to acutely inflamed breasts, where, however, I did not desire to arrest the flow of milk entirely, and therefore applied the drug over the inflamed surface, leaving the areola and nipple untouched, in order that the infant might be able to suck with safety. Finding the influence of the belladonna most beneficial in these cases in both relieving the pain and reducing the inflammation, I have been led to extend its use to inflammatory swellings of various kinds affecting the surface of the body.

In the acute inflammatory swelling of the lymphatic glands of the neck, which is so excessively painful and so often runs

on into suppuration, I have found great benefit from the free use of the extract softened with glycerine; occasionally, if the pain is very great, employing a linseed-meal poultice over the extract for a few hours only. In inflammation of the lower jaw and the adjacent tissues, depending upon alveolar abscess, I have seen the greatest benefit derived from the application of the extract, and have rarely had to make external incisions in these cases. In lymphatic inflammations, when the cause is more distant, I have also seen benefit derived from the belladonna. Some years back I was consulted by a young army-surgeon who had inoculated his finger with some virus, and who had violent and most painful inflammation of the lymphatics of the arm. Here and in other similar cases the application of the extract was of the greatest service, and most materially reduced the inflammation. In the treatment of bubo I have also found the belladonna useful, but rather in the femoral variety, when the inflammation depends upon some simple sore in the foot, than in the inguinal and venereal bubo, where the poison is of a specific character.

In more strictly localised inflammations, such as boil and carbuncle, I have found belladonna give great relief in the earlier stages, reducing the angry blush upon the skin, and leading to resolution, provided suppuration had not taken place. If it had, however, I prefer early recourse to the knife: in the case of a boil, passing a narrow blade down the centre until matter is reached; in carbuncle, employing subcutaneous section, as recommended by Mr. French.

I have employed the extract of belladonna a few times in cases of orchitis, where the inflammation has been of a subacute character, and has depended upon some slight irritation, such as the passage of a catheter. I fancied that this was a novelty, but, from a reference in Nevin's "London Pharmacopœia Translated," I find that in the *Lancet* of 1837-38 (vol. ii. p. 81) a Dr. Hall wrote respecting the treatment of orchitis by the external application of belladonna; and from the description he gives of the condition of his patient when first seen, he must evidently have been suffering from inflammation of the testis in its most acute form. In the treatment of chordee, I have found the application of the softened extract along the

lower surface of the penis of service, and so also in a case of very irritable urethra depending upon a granular condition of the mucous membrane of the bulb (as seen with the endoscope), where micturition, and still more sexual intercourse, gave rise to severe aching pain along the urethra. In cases of slight ulceration and fissure of the anus I have found the use of a bougie smeared with equal parts of extract of belladonna and mercurial ointment of great benefit, in some cases effecting a cure without any operative interference, and in all cases giving relief to the spasm which usually accompanies this affection. Dr. Tanner (*"Practice of Medicine,"* p. 513) speaks highly of suppositories made of the mercurial ointment and the extract, in the proportion of half an ounce of the former to twenty grains of the latter, and brought to a suitable consistence with cocoa-butter; but I think the bougie brings the medicament more fully into contact with the mucous membrane.

Even in parts where the drug cannot be brought into immediate contact with the organ affected there may yet be a beneficial influence exerted. Thus I have in two instances seen the very greatest relief derived from the application of belladonna to the spine, in congestion of the spinal cord (?) accompanied by most violent pain and spasms—in one case almost resembling tetanus. Mr. Erichsen has also employed the extract as an application to the spine, in cases of shock from railway injury, with advantage.

The manner in which the pupil responds to the action of belladonna smeared around the orbit, or the solution of atropine introduced into the eye, is thoroughly recognised by the profession, though authorities are by no means agreed as to the physiology of their action. Because division of, or pressure upon, the third cranial nerve is well known to produce dilatation of the pupil, it appeared reasonable to suppose that the dilatation caused by belladonna must be due to its paralysing influence on this nerve. When, however, it was discovered that the iris possessed circular fibres (sphincter pupillæ) as well as radiating fibres, it was suggested that the former were supplied by the fifth nerve, and were paralysed by the action of belladonna applied to the skin, leaving the dilating fibres (supposed to be supplied by the third) free to dilate the pupil. More recently,

however, and by the best authorities, it has been again held that whilst the sphincter pupillæ is supplied by the third, the dilatatory is under the influence of the sympathetic, and that the effect of the belladonna is to paralyse the third, and allow the sympathetic to act. Dr. Anstie ("Stimulants and Narcotics," 1864) upholds the view that the dilatation is due to the effect produced upon the sympathetic nerve, by which the vaso-motor system is profoundly paralysed.¹ Dr. A. Fleming strongly maintains (*Edinburgh Medical Journal*, 1863) the erectile nature of the iris, and the fact that its changes depend upon increased or diminished vascularity. He says: "The atropine reaches first by imbibition the arteries entering the iris; constricts them; impedes the flow of blood to, and relaxes its tissue. The constriction of the arteries of the iris, with its consequent relaxation, draws into action by functional sympathy (and without the intervention by reflex action of the brain or cord) the radiating fibres, and dilates the pupil." The researches of M. Rouget (*vide* Anstie, p. 479) appear to me to be strongly confirmatory of the erectile nature of the iris, since he shows that the superficial appearance of radiation does not indicate the course of the muscular fibres, but merely that of certain folds of the vascular tissue, which are continuous with the ciliary processes.

Now from what has been already said of the effect of belladonna upon hyperæmic surfaces of the body, where no complication of nervous supply exists, it is sufficiently evident that belladonna, by acting on the vaso-motor nerves, has the power of constricting the blood-vessels of the part to which it is applied; and hence it may, I think, be inferred, that dilatation of the pupil depends upon a similar action. But if further proof were wanting, it would be found, I believe, in the sedative effects which the application of atropine to the eye produces, and its

¹ It should be remembered that Dr. Anstie regards *intense and persistent spasm* of vessels as indicating, not nervous irritation, but the extreme degree of abolition of presiding nerve function, leaving the muscular fibres to an almost purely physical contraction. A slighter degree of sympathetic paralysis, which only cuts off the influence of the centres, might in this view cause *dilatation* of the iridal vessels, and *contraction* of the pupil. But it is the peculiarity of belladonna very early to produce its *extreme* effects on certain vascular districts, of which the ocular is one; and thus dilatation of the pupil is an early phenomenon in poisoning the mydriatics, while it only occurs much later in poisoning with other narcotics.

obvious tendency to reduce inflammatory or hyperæmic conditions of that organ. Take the intolerance of light which so strongly marks strumous ophthalmia, and it will be found that nothing so quickly relieves it and enables the child to resume its ordinary occupation as the application of atropine or belladonna. In rheumatic and gouty iritis, and sclerotitis, the drug is not less useful when locally applied, the vascularity diminishing rapidly under its use, and the patients being saved those depletory measures which their strength can rarely support.

To pass to another part of the subject—the internal administration of the drug. Dilatation of the pupil and relief from photophobia are produced almost as readily by the internal administration of belladonna as by its external application; and it is reasonable, therefore, to suppose that its action is the same in whichever way it reaches the blood—viz. that it diminishes vascularity by inducing constriction of the blood-vessels. I do not propose to discuss the various diseases, such as epilepsy, whooping-cough, &c., in which the internal administration of belladonna has proved useful, but shall confine myself to a few surgical diseases in which I have found the drug beneficial. In nocturnal incontinence of urine in children, I have found considerable benefit from the internal administration of the tincture of belladonna, combined with tonic treatment; and have also proved its efficacy in cases of too frequent nocturnal emissions. In a case of troublesome spasmodic stricture, lately under my care, I found benefit derived from the administration of the tincture in \mathcal{M} ij doses every four hours, so that in two days the patient was able to pass No. 8 catheter for himself. The application of belladonna to the perinæum, in cases of spasmodic stricture, has often been recommended; but I think its internal administration more satisfactory. In cystitis, belladonna administered internally would, I believe, prove a valuable remedy; but I have not had the opportunity of trying it sufficiently to speak positively on the point.

I have employed small and frequently repeated doses of belladonna internally in erysipelas, and have been perfectly satisfied with the result, and should have no fear of employing it even in erysipelas of the head, on account of the supposed danger of inducing congestion of the brain. The drug would,

I take it, produce an exactly opposite effect ; for so far from driving the erysipelas in upon the brain (if that is ever possible), the influence of the belladonna would be exerted equally upon the interior with the exterior of the cranium, and any congestion of the capillaries of the brain which might be present would thus be antagonized. If this view is correct, it would appear that belladonna might be usefully had recourse to in cases of congestion of the brain from any cause : and such is probably the fact.

The conclusions I would venture to draw are, that the action of belladonna, whether applied locally or given internally, is the same ; viz. that by its action upon the vaso-motor system of nerves it diminishes the calibre of the capillaries, and thus directly reduces the vascularity of an inflamed part. Its action is thus peripheral ; and it is, therefore, the opposite of aconite, whose action is central or upon the heart itself. It does not follow, however, that the two drugs cannot be employed together ; quite the contrary : the action of the one is to diminish the flow of blood to the part, whilst the other assists the tissue to get rid of the superfluity it already contains and resist its further entrance, and the two may in many morbid conditions be advantageously combined.

ON CARBOLIC ACID IN THE TREATMENT OF DYSPEPSIA.

BY PODMORE W. JONES, M.D.,

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I HAVE read with considerable pleasure Dr. Lawson's valuable paper on the successful employment of sulphurous acid in pyrosis, in the September number of the *Practitioner*, a publication deserving the support of every medical man, not only on account of the able manner with which it is edited, but for the eminently practical character of its papers.

Having myself had considerable experience in the treatment of dyspepsia, and especially in that form to which the term of chronic gastric catarrh has been, I think, happily applied, and having employed with anything but satisfactory results the various remedies, including the sulphites and hyposulphites of the alkalies, which have from time to time been recommended by those authorities who have written on the subject, I was led to the administration of a remedy, which I thought might be useful, from having witnessed its magical influence on the treatment of some parasitic cutaneous diseases.

For the past three years I have been directing my attention to the treatment of diseases of the skin, within which time a considerable number of cases of favus and pityriasis have come under my observation, and in every case I have been enabled to effect a cure in an incredibly short space of time, by the employment of carbolic acid in the proportions of two parts of the acid to three of glycerine and water, in the form of a lotion applied to the parts twice daily, and by the daily use of carbolic acid

soap. Observing the beneficial influence of the acid in the treatment of the above diseases, it occurred to me that if it could prove so eminently curative in the treatment of external affections having a vegetable origin, it might also be found serviceable in cases of pyrosis and chronic vomiting, in the ejected matters of which I had repeatedly observed under the microscope vegetable organisms, such as *sarcinæ*, *torulæ*, &c., in considerable quantities. Accordingly, in the next case of pyrosis which came under my care, I prescribed fifteen drops of a solution, containing one grain of the acid to a drachm of spirits of wine, to be taken in a wine-glassful of water, an hour before each meal. The patient, a gentleman, informed me that after having taken some ten doses, the water-brash ceased, and with it the whole train of dyspeptic symptoms. He had, however, some four months subsequently a return of the pyrosis, which was speedily relieved by again having recourse to the remedy. Since the occurrence of the above, some twelve cases of pyrosis have been treated by me with the same remedy, and invariably with the same satisfactory results. Although I am not in a position to explain satisfactorily the *modus operandi* of carbolic acid in the treatment of the above malady, still I am inclined to believe it acts much in the same manner as sulphurous acid, by destroying the vegetable organisms, and so checking the fermentative process to which these growths give rise. Be this as it may, I am inclined to think that in carbolic acid we have an invaluable remedy in the treatment of diseases, the cause of which may be attributed to the presence of these organisms.

Reviews.

Die Electricität in ihrer Anwendung auf practische Medicin. Von DR. MORITZ MEYER. Dritte gänzlich umgearbeitete und vermehrte Auflage. Berlin: Hirschwald, 1868. Gr. 8vo, pp. 423.

Electricity in its Application to Practical Medicine. By DR. MORITZ MEYER. Third Edition, revised and enlarged. Berlin, 1868.

THE appearance of the third edition of this excellent standard work gives occasion for a remark or two on the very interesting and important stage on which medical electricity has now for some time past entered in Germany. In his preface to the present issue, the author speaks generously and appreciatively of the late Professor Remak, who with all his faults was undoubtedly one of the principal agents in what may fairly be called a revolution in medical electricity. It was he who mainly upheld the merits of the continuous as against the induced current. As Dr. Meyer justly remarks, it was a great pity that in his vehement partisanship of the former he should have done serious injustice to the great therapeutic virtues of the latter; and, what was even more to be regretted, considerably delayed the appreciation of a most important series of differences and contrasts between the physiological action of the two currents. There arose a widespread incredulity about the trustworthiness of his results and the soundness of his general views. It is satisfactory to observe that these apparent contradictions are being cleared up, and that there is a substantial *consensus* of opinion on a number of most important points respecting the action of the two kinds of electricity which are principally useful in medicine. Looking back over the progress of electricity within the last twelve months, Dr. Meyer sees great reason for congratulation. In particular, the feasibility of directly affecting the brain and the spinal cord by the constant galvanic current, which has been so often disputed, the electro-tonic action of the same current in the living subject, the reality of galvanic stimulation of the sympathetic in man—all these are matters which have been withdrawn from the shadowy region of hypothesis into the clear field of demonstration; and a most important new department

of therapeutics is thus satisfactorily commenced. The surgical uses of electro-chemistry are also beginning to attract increased attention, viz. in the case of the electrolytic cure of aneurisms and varices, of strictures, and of tumours. The following are the conclusions at which Dr. Meyer arrives in regard to the comparative functions of the interrupted and continuous currents:—

1. The interrupted current is appropriate for the production of,—(a) excitement of the muscles, of the motor nerves, and of the sensory nerves; (b) contraction of the blood or lymph vessels; (c) stimulation of certain of the organs supplied by the sympathetic. 2. The muscular contraction produced by the interrupted current raises the temperature in the muscles concerned, and increases their volume. 3. This electric stimulation positively *increases* the excitability of the intensity and duration; but in opposite conditions an exhaustion of excitability is soon apparent. The current should therefore only be used of such strength as is just sufficient for the particular purpose in hand, and even this must not be continued too long, nor without proper intervals. 4. When we wish to reduce muscular spasm, to abolish a peripheral contraction, a strong battery current repeatedly interrupted, or single shocks of a powerful inductive apparatus, are indicated: this is generally more effective than the continuous action of a constant current. 5. The constant current proper is applicable to,—(a) the stimulation of sensory or skin nerves; (b) the destruction of external skin or mucous membranes; (c) the application of heat; (d) chemical processes, especially blood coagulation (as in aneurisms, &c.). 6. Whilst in general the interrupted current is the best for the excitement of motor nerves and muscles, there are some peripheral paralyses in which the constant current produces stimulant effects where Faradisation has no power. 7. The excitability of a muscle to the interrupted current may be in many cases increased by the application of a moderately strong constant current. 8. In galvanising a nerve it is advisable to change frequently the direction of the current, for too long passage of the current in the same direction is apt to exhaust excitability, while alternation exalts it.

There are some further directions as to the production of an increased, and of a diminished, *Anelectrotonus* and *Katelectrotonus*, which we do not think it worth while to present to the reader, because at this moment the whole theory of electro-tonics—if we may coin a phrase—is at this moment undergoing sharp scrutiny and revision, which may not improbably change altogether our views as to this difficult physiological subject, and it is hardly worth while therefore to put the reader to the pain of a long explanation, which he may very shortly have to unlearn.

It is well to note that Meyer prefers for the ordinary application of the constant current Remak's zinc and carbon battery; he gives this the preference over Daniell's (and the modification of the latter by Siemens-Halske, which is employed by Benedikt and other distinguished German medical electricians), on account of the more limited chemical changes which go on in it. A battery of this kind needs no tending, except the filling of its cells with sulphate of iron crystals once every three or four weeks. As regards induction machines, he speaks with most approbation of three kinds:—Duchenne's (*vide* "Electrication Localisée," p. 127), Dubois-Reymond's, and Stöhrer's. The latter has already been described and highly recommended in the columns of this journal, and on the whole seems to be considered by Meyer almost as good an apparatus as can be had. He complains, however, that the secondary current is never so strong, even in the larger-sized apparatus of Stöhrer, as in Dubois-Reymond's, but, on the other hand, the superior convenience of the former puts competition out of the question. Meyer has, however, devised a modification of the Dubois-Reymond's apparatus (made by Siemens-Halske of Berlin), which he seems to think will more nearly approach the ideal of a Faradising machine than any previously existing. We recommend the description of this apparatus, which is too long for insertion here, to our readers' judgment. It appears to be highly ingenious; at the same time it is very expensive (costing about 9*l.*), and we should hesitate to recommend it to English medical men, in preference to the machines of Stöhrer, until more detailed evidence of its practical efficacy has been published.

Many English medical men still doubt the power of electricity, and especially of the constant current, to effect *bond fide* results in the direction of cure, except, indeed, such results as may be obtained by producing a strong mental impression. To such persons we would earnestly recommend the details of a case of progressive muscular atrophy, very carefully related by our author, in which the constant current effected a complete cure. We recommend them also to study with great care what he says about galvanisation of the brain, and of the sympathetic nerve. Those who may have been induced, by a recent review in this journal, to study the important work of Benedikt,¹ will have the impressions which that volume gives of the greatness of its subject strengthened if they now study the work of Meyer. The English will certainly ill support their claims to be considered a "practical" nation as regards medicine, if they do not very soon earnestly set about familiarising themselves with the best German literature on the subject of medical electricity, with a view to qualifying themselves for trying it effectually in their

¹ Electrotherapie : 1868. Reviewed in *Practitioner* for July.

own practice. This preliminary study must be diligent and extensive, and among the treatises that must be read medical men may certainly put down the work of Dr. Meyer.

On the Wasting Diseases of Infants and Children. By EUSTACE SMITH, M.D. Lond., M.R.C.P., Physician Extraordinary to the King of the Belgians, Physician to the North-West London Free Dispensary for Sick Children, &c. London: James Walton, 1868. 8vo. pp. 261.

THIS is a good and thoroughly practical work, by a physician who has been trained in the most approved clinics of children's diseases. It is written in a clear style and in excellent English, and conveys above all the impression of unostentatious directness of purpose; the writer having a plain story to tell, and being perfectly qualified to tell it with effect. It would be according to inappropriate praise to the book to speak of it as containing any very new or strikingly original views; but we may say of it with truth, that it condenses into a convenient and accessible form much modern information about the maladies of which it treats that till now lay scattered in a number of separate treatises, or was only known to those comparatively few students who have closely followed the clinical teaching of the best modern authorities on children's diseases in England or on the Continent. And it may be confidently stated, that there is no subject on which the profession generally more seriously needs enlightenment. By some inexplicable delusion it was formerly believed, and still seems to be believed by many practitioners, that the treatment of children's diseases (except certain acute fevers and inflammations) is a comparatively simple and unimportant matter; or at least that success in this matter is chiefly attained by uninstructed empiricism, or what is commonly called "experience." The book now before us is one sign among others that the reign of these ideas is coming to an end. Here is a treatise which confines itself to a few of the chronic maladies of childhood. It deals, in nine successive chapters, with just so many common forms of chronic infantile disease, which, it must be confessed, are too often treated by the light of nature in the sense of mere haphazard drugging; and it submits each of these to a discussion as rigorously scientific as that which would be accorded to the best known and most typical maladies of adult life. There is no verbiage or repetition; on the contrary, there is very commendable condensation; yet the reader feels on closing the volume that he has been studying a large and important branch of medicine. The subjects dealt with are—simple atrophy from insufficient nourishment, chronic diarrhoea, chronic vomiting, rickets, congenital syphilis, worms, chronic tuberculosis, chronic pulmonary phthisis, and tuberculization of glands. Besides

the chapters on these special subjects, there is an introduction, which deals very clearly with the general symptoms, causes, and prognosis of wasting in general, and lays down excellent general principles of treatment.

If we were to point attention to what is most novel in Dr. Eustace Smith's work, we should refer the reader to his interesting comments on the modern pathological doctrines about tubercle, and the practical inferences which he seeks to draw from the preference which he accords to the arguments of Dr. Andrew Clark. A more immediately useful, and indeed a very meritorious, feature in the book is the pains which the author takes in the small matters, with little questions, for instance, of cooking and preparing food, and the care which he takes to give full and clear prescriptions when he recommends the use of drugs at all.

Transactions of the Fifteenth Annual Meeting of the Medical Society of the State of North Carolina. Wilmington, N.C., 1868.

THIS pamphlet contains a good deal of interesting matter, not so much in the way of clinical histories of disease, though a few interesting cases are recorded, as in the shape of two addresses to the Society, which allow us to see a good deal of the tone of medical thought in America at the present day. So far as we can gather, the present is a transitional period with our Transatlantic colleagues, but the able address of Dr. Norcom, of Edenton, adopts in the fullest way the principles of restorative medicine, and seems to expressly assert that the reign of theoretical anti-phlogistics is passing away.

Clinical Lectures on Diseases of the Liver, Jaundice, and Abdominal Dropsy. By CHARLES MURCHISON, M.D., F.R.S., Physician to the Middlesex Hospital. London: Longmans.

THE author of this work modestly lays it before the profession as an incomplete account of the diseases it treats upon, alleging that his object has been to put prominently forward the leading characters on which the diagnosis of these diseases mainly depends. He has, however, done much more than this. He has given us a monograph on liver affections, which may be profitably read by the student; and in which the physician will find a system of diagnosis, both practical in its application and thoroughly scientific in the principles on which it is based. The book embraces twelve lectures; of these four have already appeared in the *Lancet*, and the others have in part been condensed from the author's clinical notes, and in part embody the various memoirs on the subject of liver diseases which Dr. Murchison has from time to time contributed to medical journals. In addition there are numerous excellent woodcuts

intercalated with the text, and nearly a hundred illustrative cases are clearly and fully recorded, and are placed under their several proper headings. It is to the therapeutical part of the work that we have specially to direct attention, and this will be found thoroughly comprehensive and advanced. Indeed it seldom falls to our lot to find in medical books such ample therapeutical information, and so much impartiality in the discussion of questions relating to the respective values of various modes of treatment. We cannot, within the limits of our space, do justice to the author's efforts in this direction, but we may glance at one or two important problems in the treatment of liver diseases, and review Dr. Murchison's opinions. In doing so we cannot do better than refer to his observations on the prevention of amyloid disease. Dr. Murchison takes a philosophic view of the art—shall we not call it the science?—of hygiene, and asserts boldly, and we think justly, that the prevention of diseases has not yet received from the practical physician the attention it deserves. Having pointed out the frequency of excessive suppuration as a cause of amyloid degeneration, he goes on to say: "First and foremost it is always advisable to arrest, as early as possible, copious suppuration from any part of the body, and in particular from diseased bone, and, if necessary, to have recourse to surgical interference for this purpose. It may, indeed, be a question whether some of those operations which what is called 'conservative surgery' has of late years substituted for amputation, from entailing protracted suppuration, have not sacrificed the life of the patient to the endeavour to save his limb. . . . In cases where the disease of the liver comes on in the course of phthisis, our treatment must be directed to the primary disease, and every means should be employed to arrest the purulent discharge from the lungs, the diarrhœa, and the exhausting sweats." In like manner, syphilis—a very frequent forerunner of amyloid affections—must be met by appropriate means, and the same may be said of ague and dysentery. Dr. Murchison alludes to the chemical theory that the amyloid matter is de-alkalized fibrine, and the therapeutical doctrine based upon it, of the necessity for alkalies; but he gives no distinct opinion on the question, though he affirms that the mineral acids are most valuable in these affections. As regards general treatment, he inclines most to the tincture of iodine (P. B.) in doses of ten or fifteen minims diluted, three or four times a day; and least to cod-liver oil, which he says is of questionable utility.

The propriety of using the trochar for hydatid cysts is another point on which Dr. Murchison gives us his own ripe experience, and analyses most fairly the conflicting opinions of other writers. The advisability or non-advisability of opening hydatid cysts is

a question of the utmost significance to the practical man, and we think that Dr. Murchison's recommendation is in accordance with the teaching both of science and common experience. "A careful consideration," he says, "of the whole matter—of the dangers of the disease when left alone, and of the inutility of medicines on the one hand, and of the success hitherto obtained by the operation on the other, leads to the practical conclusion that in all cases *where an hydatid tumour is large enough to be recognised during life, and is increasing in size, it is advisable to puncture it at once.*¹ If the tumour appears to be diminishing in size it may be well to wait, but it is unnecessary to wait for the formation of adhesions, or to endeavour to induce them." To wait for adhesion, Dr. Murchison thinks, is to increase the chance of abscess, and to diminish the elasticity of the cyst, and thus risk the passage of fluid from the trochar into the peritoneum. He therefore advises the employment of the trochar while the walls are still elastic. As might have been expected, the author likewise urges the physician to lose no time in employing the trochar also in *tropical abscess*. Though in Morehead's and Waring's cases but a small proportion of those operated on recovered, he thinks that in many instances death was due, "not to the operation, but probably to this having been too long delayed."

Of the highest interest is the chapter on Jaundice, for here the author brings the latest researches of physiology and pathology to bear upon the mode of treatment now employed in this affection. Here we find also the expression of his views on the action of mercury upon the liver. Dr. Murchison is agreed with most of our modern school of physicians, in believing mercurial preparations to be of little service in increasing the secretion of bile. "The practical physician," he remarks, "gives a dose of calomel, finds the quantity of bile in the motions greatly increased, and argues that the liver has been stimulated to an increased secretion; but the physiologist ties the common bile-duct, makes a fistulous opening into the gall-bladder, and then finds that calomel has no effect on or even diminishes the amount of bile that drains away through the fistula. Mercury and allied purgatives probably produce biliary stools, by irritating the upper part of the bowel and sweeping on the bile before there is time for its absorption; irritating articles of diet will often produce precisely the same effect." In conclusion, the author states that calomel is of unquestionable utility in congestion of the liver; but if it acted, as is usually argued, by stimulating the liver to increased secretion, it might be expected to increase the congestion rather than diminish it. Whether this assertion of the therapeutic value of calomel will

¹ The italics are ours.—Eds.

pass unchallenged we very much doubt, but at present the subject is really *sub judice*, and we refrain from further comment upon it. We wish we could devote greater space to Dr. Murchison's volume, but we must now leave it, commending it in the highest terms of praise to the notice of our readers. It is a book full of facts, clearly and forcibly written, and embodying the latest results of scientific and clinical research; it must henceforth occupy a high rank among works of reference on the diagnosis and treatment of affections of the liver.

A Treatise on Physiology and Hygiene. By J. C. DALTON, M.D., Professor of Physiology in the College of Physicians and Surgeons, New York. London: Sampson Low.

IT has been said that the reason why we have no international copyright between this country and America is that the Americans find in this country abundance of matter worth republishing at home, but that they have no publications of their own which it would be worth our while to re-issue. This is, of course, only partially true; but if Dr. Dalton's work be taken as a type of Transatlantic medical literature, we must say that the explanation has a good deal of truth in it. We cannot conceive why the book before us has been called a treatise on "Physiology and Hygiene." Its physiology is of the oldest existing school and of the most painfully popular character; and its hygiene—well, we shall say nothing about it, for the simple reason that we have failed to find a line on preventive medicine in the whole volume. It is essentially a piece of book manufacture of the worst order, consisting of an account—which might have been written twenty years ago—of the elementary phenomena of animal life, and containing a few very diagrammatic illustrations borrowed from the author's larger treatise. We repeat the book has no claim to the second portion of its title, and it very unfaithfully represents its first one. It is impossible not to condemn in the severest terms an attempt to palm off upon the public, as a treatise on preventive medicine, a work which is exclusively devoted to popular physiology, and is even on this subject inferior to the worst English treatises. We regret having to pass this censure all the more that America has many sons who are qualified in the highest degree for the important task which Dr. Dalton has undertaken, but has certainly not accomplished.

Clinic of the Month.

Use of Strychnia in the Vomiting of Phthisis.—Dr. Douglas R. Powell sends us a note in which, after alluding to the frequency and distressing character of the vomiting in phthisis, he makes the following remarks descriptive of three forms of this condition: (1) General relaxation of the mucous membrane of the fauces and back of the pharynx, often associated with a long uvula and giving rise to the secretion of a tough mucus, which may be seen adhering to the posterior wall of the pharynx. The efforts to dislodge this mucus, or the tickling of the long uvula, result in vomiting, no doubt from irritation of the recurrent nerve. (2) A very viscid condition of the expectoration leads to vomiting in the same way—viz., by mechanical irritation causing violent cough and retching. (3) There appears to be in many cases of phthisis, and more frequently in advanced cases, an increased sensibility or hyperæsthesia of the pneumogastric nerve affecting both the branches supplied to the stomach and those to the lungs; these two sets of nerve branches act and react upon one another, and affect the organs to which they are distributed in a reflex manner. The irritation of the secretion in the bronchial tubes causes a violent and prolonged fit of coughing, which often lasts until the patient is perfectly exhausted, and terminates in vomiting or empty retching; in these cases also the ingestion of a meal will usually bring on an attack of coughing of the same paroxysmal character, and which terminates in vomiting; the presence of food in the stomach, though not irritating enough to produce direct vomiting, may yet set up at a distant part an irritation sufficiently great to react upon the stomach, and to produce vomiting by reflexion. This is a by no means unparalleled phenomenon. The marked paroxysmal character of the cough terminating in vomiting, and set up by the presence of food in the stomach, remind one very strongly of the phenomena so often seen in whooping-cough, and the same explanation, and perhaps the same remedies, will apply to both cases. This irritability of the pneumogastric is (in these cases) always associated with deficiency of power, but there is often (but not always) present also some gastric catarrh, evidenced by the red and furred tongue. The treatment depends upon the nature of the case. For those in the first category, local astrin-

gents, as the alum gargle, or spray, with mineral acids and bark, or iron; when the mucus is very viscid, inhalations of vapour with acetic acid are of immediate use. When the sputa are viscid, alkalies, with ipecacuanha and stimulant expectorants, are useful. In the third class of cases—the most important and difficult to manage—if the symptoms of catarrh of the stomach are prominent, soda, with hydrocyanic acid in a bitter, will give some relief: when this fails, as it most generally does, to check the vomiting, I have almost invariably found the addition of nuxvomica (tinct. ℥x) give immediate and very great relief, the vomiting often ceasing at once. Strychnia alone, when there is but little catarrh, will relieve the vomiting. Stimulants, brandy and ammonia, are sometimes efficacious; but my experience of a considerable number of cases leads me to speak strongly in favour of strychnia. Cough mixtures must be given to allay irritation as much as possible, but they will not alone suffice.

The Treatment of Psoriasis.—In a communication on this subject, Mr. Balmanno Squire alleges that creasote has never been fairly tried against psoriasis, and that, therefore, it has not enjoyed the reputation it deserves. Mr. Squire, having employed various tar preparations with insufficient results, was induced to make a systematic trial of creasote. His employment of the officinal ointments was attended with little good. By a long series of experiments he at last was led to conclude that an ointment composed of two parts of creasote and one of white wax was the best application. This new preparation possesses greater efficacy, and is a more elegant compound, than the ung. picis liquid. He also found, what seems a paradox, that pure creasote is not—therapeutically—so strong an application as the ointment referred to, and that the diseased skin is less sensitive to the irritating effects of creasote than the healthy skin. Mr. Squire states that he has tested his opinion by more than 100 cases, and has seen no reason to alter it. He gives this caution to those about to use creasote:—"In persons of lymphatic habit the strength of the ointment described is too great. In such case an ointment in which the creasote is about one half of the whole volume is the best. For all other cases the maximum ointment will be found most suitable." (*Medical Times and Gazette*, Oct. 17.)

Incision in Hepatic Abscess.—In a series of contributions to our knowledge of abdominal diseases, Dr. Stephen H. Ward gives his opinion as to the propriety of opening hepatic abscess. "When," says he, "hepatic abscess is pointing between or beyond the ribs, the question arises as to the propriety of opening it." If the physician is satisfied that adhesion has taken place, Dr. Ward is in favour of opening the abscess,

believing that the risk of air getting into the wound is little as compared with that which would arise from the abscess continuing to extend and break up liver structure, and from the aggravation of constitutional symptoms also which would be entailed. Surgery has, however, of late years taught us that more liberties may be taken with the peritonæum than would formerly have been thought practicable; and hence, if the constitutional symptoms were urgent, Dr. Ward would puncture with a fine trochar, whether there were or were not evidences of adhesion having taken place. A short time since he directed a large hydatid cyst, which had no connexion with the peritonæum, to be tapped with a fine trochar, and thirty-seven ounces of fluid were drawn off without giving rise to any bad symptoms. Dr. Ward gives the history of an interesting case in which puncture was performed with perfectly successful results. (See *Lancet*, Oct. 10.)

“Lister’s Method” in Excision of the Wrist.—Mr. J. W. Hulke has demonstrated that Lister’s method of excision has not received the attention it deserves. He recently performed an operation by Lister’s method—which, he says, “has the great merit of being an exact operation, and one which attains the desired end with the least amount of injury to other parts,”—with the most satisfactory results. All the carpal bones, with the articular surfaces of the radius and ulna, and the proximal ends of the metacarpal bones were removed. “It was necessarily a tedious proceeding, but the tourniquet made it a perfectly bloodless one;” and by first breaking down (as Lister advises) all the inflammatory stiffness by free movement of the parts, the later steps were rendered much less difficult than Mr. Hulke had anticipated. The patient’s recovery was so complete that in the course of a year he became “a nobleman’s coachman.” (*Ibid.*)

Iodide of Potassium in Hydatids of Liver.—A case is recorded by Mr. N. Beckford (*British Medical Journal*, Sept. 26th), in which hydatids of the liver disappeared under the use of iodide of potassium. The tumour, which was undoubtedly connected with the liver, occupied the whole of the epigastrium and part of the left hypochondrium. It was smooth, globular, dull on percussion, semi-elastic, and indistinctly fluctuating. The parasite was evidently growing rapidly, as the patient had not noticed the enlargement till the previous fortnight. There was little constitutional disturbance save some pain and dyspepsia. “She was put under a course of iodide of potassium—*thirty grains a day*—and at first as a mere matter of form. To the surprise of all, however, the tumour began to diminish, and at the end of five weeks had completely

disappeared. The measurement round the waist decreased to the extent of four inches and a half during this time." It must be mentioned, however, that in two months the patient died of acute hepatitis.

The Treatment of Acute Eczema.—The plan of treatment most suitable for cases of acute eczema is thus described by Dr. Basham:—Cooling laxatives, effervescing salines, and a simple non-stimulating diet, rest for a few days in bed, and the application of some soothing substance to allay the distressing irritation of the inflamed and excoriated skin, are the remedies needed. There are no specifics for this form of eczema. Arsenic is useless; it is useful in the chronic form. Alkalies are useful, but they should be given in a palatable form; and the carbonate of potash as an effervescent, with citric acid, may be given with advantage. The oxide of zinc and glycerine slightly diluted and made of the consistency of cream, and painted over the inflamed skin with a feather or brush, convey speedy relief. A warm or tepid, not a hot, bath should be given on alternate days. To remove the concremented mass from the scalp, linseed-meal poultices made with a slight addition of liquor potassæ to the water, and kept in contact with the scalp night and day, changing the poultice every six or eight hours, are efficacious; or water dressing with a sufficient quantity of liquor potassæ to the water to help its solvent action on the crust may be substituted. During convalescence tonics are desirable. (See *British Medical Journal*, Oct. 10.)

On the Pathology and Treatment of Uterine Flexions.—At the last meeting of the Obstetrical Society Dr. Meadows read a paper on this subject for the purpose of controverting certain views lately put forward by Dr. Graily Hewitt in a paper on "The Treatment of the so-called Irritable Uterus," which appeared in these pages (vide *The Practitioner* for August, p. 89). Dr. Hewitt believes that in the great majority of cases, if not in all, of uterine flexion, the local pain and distress associated with that condition is the direct result of the flexion, giving rise, as he says, to excessive irritability of the organ: he believes that "the flexion produces, mechanically, engorgement of the uterus, interferes with the circulation within it, and compresses the nerves which course through its tissues;" and, consequently, he holds that the proper mode of treating such cases is at once to restore the organ to its normal position, and to maintain it there by some mechanical contrivance by which pressure is made behind the cervix uteri, maintaining the cul-de-sac of the vagina behind the cervix in a high position in the pelvis. To all of this Dr. Meadows takes decided exception, believing that in all cases of uterine flexion there is an antecedent morbid

condition of the uterus, characterised by enlargement and accompanied by congestion and inflammation; that the flexion is the consequence of this, and not the cause; and that, therefore, the proper plan of treating such cases is, first of all, to reduce the inflammation, the pain, tenderness, and enlargement, and then, if need be, to resort to mechanical measures for the reposition of the uterus. In a word, the issue between these two authorities appears to be this, that they exactly reverse the relative importance of the two conditions of the uterus which are admitted to be universally present in these cases, viz. flexion and inflammation; and hence the divergence in their therapeutics. It is evident that between them there can be no reconciliation; one or the other must be wrong; and only careful and unprejudiced clinical observation can determine which is right. Dr. Meadows, in the paper referred to, entered very minutely into the mode of production of uterine flexions, and into the clinical history of these cases, adducing statistics in support of his opinion that they are almost always, except in cases of accidental displacement, preceded by symptoms of uterine disorder, of which the subsequent flexion is, as it were, the direct and natural result.

Irritable Uterus.—In a paper read before the Obstetrical Society, Dr. Tilt asserted that “irritable uterus” was nothing but the neuralgia of chronic uterine diseases in women of a highly excitable nervous system, and that Gooch described, as a new disease, the fag end of various uterine affections. He owned, however, that although Gooch’s pathology and diagnosis were unavoidably incorrect, he recognised the neuralgic character of the symptoms, by the fact of these occurring in very nervous women, and being subject to paroxysmal aggravation, looking on the symptoms as analogous to dysmenorrhœa, and comparing them to the hysterical joints of young women. If, in 1829, when Gooch wrote, it was impossible to identify the various uterine complaints that might arise as an aggravated form of neuralgia, this was no longer the case in 1859, when Dr. Fergusson wrote; and he noted the connexion of what Gooch described as “irritable uterus” with structural lesion of the womb. But variable as is uterine disease, Dr. Tilt adopted the views of these eminent practitioners, for during the last twenty-five years he had seen the symptoms described by Gooch to accompany long neglected sub-acute inflammation of the body and neck of the womb, ulceration dipping into the cervical canal, internal metritis, very small fibroids springing from the external surface of the fundus, where it joins the neck of the womb, retroflexion of the womb, and chronic ovaritis. The author considered the main cause of “irritable uterus” to be

that indefinable condition of the nervous system that we talk of as "highly excitable;" and, given that condition, a small amount of any uterine disease may give rise to a group of aggravated nervous symptoms: but that, however small the lesion, it had always more or less existed for many years. Entertaining these views, Dr. Tilt entirely dissented from a statement lately made in this journal that "irritable uterus" was nothing more or less than retroflexion of the womb of a marked character; and Dr. Tilt could not understand how Dr. G. Hewitt had been able to cure or relieve all his cases of irritable uterus by the use of the American pessaries, unless he gave the name of irritable uterus to ordinary cases of uterine retroflexion; neither could the author reconcile this assumed faculty of curing irritable uterus by pessaries with the well-known fact that the complaint is often fearfully aggravated by surgical interference. Dr. Tilt observed, that in his practice recovery was most frequently due to the combination of tonics and sedatives with such surgical and hygienic measures as were calculated to eradicate morbid uterine lesions, and that in these cases recovery sometimes occurred all at once, and was by the patient attributed to some trifling coincidence, such as going to the seaside, or taking pepsine. He had also seen recovery follow marriage, or a change from painful to pleasurable circumstances, or from the growth of fibroids raising the womb into the abdomen, or from the cessation of menstruation, and also from the rectification of retroflexion. Nevertheless some of his patients, who had been invalidated for many years by aggravated uterine neuralgia caused by chronic inflammation of a retroverted womb, were now able to take an active part in the duties and pleasures of life, although the womb is just as much retroverted as when they suffered most. And as similar cases have been recorded by Dr. Bennett, Dr. Meadows, and many foreign authorities, Dr. Tilt concluded that it is not the distortion or displacement of the womb that causes such very distressing symptoms, but the neuralgia, congestion, or inflammation by which the distortion and displacement are so frequently accompanied.

Extracts from British and Foreign Journals.

General Electrization.—In a paper read before the New York County Medical Society, and published in the *Medical Record* for September 15, Dr. A. D. Rockwell publishes his views on "General Electrization" in certain uterine affections, and uses the term somewhat differently from the sense in which we employ it. The author says that the words "general electrization" were first used by himself and Dr. George Beard "to express that method of employing the *Faradaic* current, in which the feet of the patient are placed on a sheet of copper, to which the negative pole is attached, while the operator applies the positive, over the neck, shoulders, and arms, down the spine, over the chest and abdomen, down the lower extremities,—in short, over *the entire surface of the body from the head to the feet.*" He then goes on to describe some cases of dysmenorrhœa and menorrhagia, treated successfully by this means, and he concludes with the following general statements:—First, general electrization, used in the manner described, is a *tonic* of vast and varied powers, and, as such, is specially indicated in a large number of nervous diseases that are associated with general debility. It meets with its best success in dyspepsia, rheumatism, neuralgia, paralysis, anæmia, hypochondriasis, chorea, amenorrhœa, and dysmenorrhœa. Second, the effects of the electrical current, passing through the body of the operator, as it must do when the hand is used as an electrode, are beneficial rather than injurious. Theoretically, it would seem that an agent which is so powerful over disease must be harmful when used to such great excess through the body of the operator. Third, general electrization is not an easy thing. To master all the details requires study and practice. It is very important that the current should be fine and smooth (!) especially when applications are made to the very weakly or nervous. This vital fact is not considered by those who employ electricity in general. Again, the applications must be graduated carefully to the strength of each individual. An injudicious application, or one too severe for the constitution of the patient, may cause most unpleasant prostration and soreness for several days—perhaps great nervousness and insomnia—which are, of course, very alarming to the patient. Fourth, the benefits and cures wrought by general electrization

are not usually rapid or brilliant in their course, but are achieved by persistence, as well as by thoroughness and delicacy of manipulation. Finally, general electrization is a feasible thing for those, and those only, who will devote to it the same time, energy, patience, and perseverance, that they would to the mastering of ophthalmology, gynecology, microscopy, or any other special department of science. The experimenter with electrization has this advantage that he can experiment on himself, and he should do so for a long time before he begins to use the agent to any extent on others. The thousand and one details of this method of practice are only to be learned by varied and constant experience.

Physiological Action of the Poison of the American Copperhead (*Trigonocephalus contortrix*).—Some very interesting experiments have recently been conducted with the poison of this reptile, by Dr. Joseph Jones, Professor of Physiology in the University of Nashville, U.S. The poison was administered by the reptile being allowed to bite the animals (dogs) experimented on, and the inquiries seem to have been very scientifically conducted. The following conclusions have been formulated by the author:—(1) The primary action of the poison is on the blood. (2) The poison of the copperhead is directly destructive to the red blood corpuscle, altering its physical and chemical properties and relations, and rendering it unfit for the performance of its important offices in respiration, circulation, and nutrition. (3) It seems to have an affinity more especially for the colouring matter of the coloured blood corpuscles. (4) Under its action the animal temperature is but slightly raised, notwithstanding the profound changes inaugurated in the blood, and after the establishment and propagation of their pathological changes the temperature descends. (5) The action of the heart is increased in frequency, and diminished in force. (6) In its action on the cerebro-spinal system, the poison resembles a mild narcotic. (7) The profound alterations induced by the poison in the constitution of the blood, give rise to passive hæmorrhage into the cellular structures, and from the intestinal mucous membrane. This, says Dr. Jones, recalls strongly the passive hæmorrhage in certain febrile diseases, and especially in yellow fever. Some have supposed that the black vomit of yellow fever was the resultant of the effects of the preceding intense fever; but Dr. Jones asks, “Do not the present experiments indicate that it is rather the resultant of the action of a poison on the blood, and gastro-mucous membrane?” (*New York Medical Record*, September.)

The Seeds of the Cucurbita Pepo in Tænia.—M. Baradoux, physician to one of the Military Hospitals of Algeria, has pub-

lished a case in which the citrouille seeds, as he terms them, were most advantageously employed in the removal of tape-worm. The patient, a woman thirty-five years old, objected to taking kouso, and other such preparations. M. Baradoux was, therefore, led to try the seeds of the citrouille as a last resource, and without much faith in their power. The medicine was prepared thus: after having deprived them of their bark, sixty grammes were weighed out, and were triturated in a mortar, with a little powdered sugar. Hot water being added, a sort of emulsion about the consistency of cream was formed. This dose was given in the morning for three days, and on the fourth the worm was expelled. The parasite was 3 metres 50 centimetres long (about $11\frac{1}{2}$ feet), was gathered up into a sort of knot, and occasioned no pain or colic. No purgative had been given, and yet the head of the worm (as shown by the suckers) was expelled with the segments attached to it. (*Journal de Chimie Médicale*, September.)

Sulphur in Diphtheria.—Commenting on M. Barbosa's cases recently published, a writer in the *Journal de Chimie Médicale* describes a case in which all diphtheritic symptoms were present. The patient was treated first with alum and honey, but without any satisfactory effect. Insufflation of flower of sulphur was then tried every three hours, with sulphate of quinine and "sulphuric lemonade." The day following this treatment the false membranes had considerably diminished, especially in thickness, extent, and consistence. They assumed a creamy appearance, and in four days they had completely disappeared, and the general health of the patient was much improved. The writer, referring to the several other cases which M. Barbosa has published, thinks that we cannot reject so very high an authority, but at the same time he thinks that the experiments throw considerable doubt on the whole subject. He says that so many accessory medicines have been employed that there is difficulty in deciding whether they or the sulphur effected the cure. He recommends that unwashed flowers of sulphur be used, and suggests a simple tube, slightly bent, so as to allow it to bear upon the affected surfaces.

Therapeutical Effects of Compressed Air.—M. F. Bricheteau has published a very interesting paper on the history, process of administration, physiological action, and therapeutical effects of compressed air. He says that few applications of the method have been tried in acute diseases. He thinks, however, that it might be usefully employed in the various mucous phlegmasiæ. In these cases the primary cause is often a simple disturbance of the local circulation. He asks, therefore, might not compressed air, by contracting the capillaries and increasing

the rapidity of the local blood-currents, be of great service in the commencement of the attack? He admits that it would be of little use after secretion and exudation had once taken place. Compressed air is said to find its best results in chronic diseases, such as chronic bronchitis, and emphysema; but M. Bricheteau thinks that so few clinical observations are recorded, that it would be wise to withhold our opinion for a while. Speaking of its employment in diseases of the heart, and in phthisis, he expresses considerable doubt, on the ground that structural lesions having taken place, they are not likely from its influence to undergo repair. In conclusion, he says, the new remedy promises much, and inquires, will it fulfil its promises? He looks on it rather as an experimental novelty than a scientific process, deduced from physiological laws. (*Bulletin général de Thérapeutique*, Sept. 15.)

Lactic Acid in Removal of False Membranes.—Some time since we published an abstract of M. Bricheteau's experiments on the best solvents for false mucous membranes. Clinical observations now come to hand in a letter addressed to the *Bulletin de Thérapeutique* (Sept. 15), by M. le Dr. Dureau. Here, says the writer, are the results I obtained by the application of lactic acid:—1st case, a child four years old, who had been two days ill. There was well-marked fever, drowsiness, depression, painful swelling of the maxillary glands, very thick membranes on the velum palati, the tonsils, and pharynx, and deglutition impossible. Prescription: to touch the affected parts with the solution, and to prolong the contact as long as possible. This was on the 4th of the month. On the 5th the false membranes were completely detached, and were replaced by a delicate whitish semi-transparent pellicle, and the patient was able to swallow soup. On the 6th and 7th some small points remained; on the 8th all these had disappeared; gargles and emulcent drinks were administered, and on the 9th the recovery was complete. 2d case, the patient had false membrane on the left tonsils on the 8th, and was well on the 9th. M. Dureau gives three other similar cases, in all of which a cure was rapidly produced by the local application of lactic acid. He concludes by saying that lactic acid is an excellent remedy. It dissolves the false membranes perfectly, and effects a cure more rapidly than anything that has yet been tried. It is devoid of all disagreeable taste—a point of some value in treating children. Being a very innocuous substance, it may be used with safety even by the most inexperienced persons. Finally, if lactic acid be not a specific for all pseudo-membranous affections, it can by the rapidity of its action prevent diphtheritic infection; and that is a property of no mean value.

Treatment of Typhus by Cold-water Bath.—An important paper on the subject has lately appeared in the Berlin journal of medicine, and is given in abstract in the *Union Médicale*. The mode of application of the cold-water bath is thus described. The temperature of the patient's blood is first taken. He is then plunged in a bath of a temperature of 14° Réaumur [63½° Fahr.]: occasionally the temperature may be lowered one or two degrees; and when the bath becomes warmer from the heat of the body, it will be necessary to lower it again to 14°. During the bath, water of the same temperature is poured over the patient's head in a sort of continuous stream. The duration of the bath must depend in a great measure on the sensations of the patient; if the latter complain of external cold, it will be well to stop the bath altogether. It usually lasts from ten to thirty minutes. The patient is then dried with great care and put to bed, and given some generous red wine, which, so far from elevating, diminishes the temperature. Professor Mosler, who has used this method extensively in private practice, has found the best results from it. He gives also very large doses of quinine, from one to three grammes twice a day, with the happiest results.

Morphia given hypodermically in Mental Diseases.—In the *Annales de la Société de Médecine de Gand* there is an instructive paper on the subject. It would seem that this mode of treatment is very efficacious. The morphia is injected in the usual manner, the first doses being about from one to two centigrammes of the acetate (0·15 or 0·30 of a grain).

Therapeutic Uses of Thymic Acid.—Writing in the *Union Pharmaceutique*, M. le Dr. Paquet states that this acid, which is allied to carbolic acid, is a remedy of immense value to the surgeon. He describes its effects on healthy and morbid tissues, and draws the following definitive conclusions as to its uses:—(1) Thymic acid deserves to hold a high place among the antiseptic preparations used in treating wounds. (2) In its concentrated form it is an excellent substitute for nitric acid and nitrate of silver. It is especially superior to phenic acid, because it has not got its extremely disagreeable odour. (3) In aqueous solution (1 in 1000), to which a few grammes (a gramme is equal to 15·4 grains) of alcohol have been added, it is extremely useful in furthering the cicatrization of wounds. It is especially serviceable in those cases in which tincture of iodine is generally employed.

The Atomistic Method of Administering Drugs.—This mode, which is part of the homœopathic practice, is being energetically advocated in the Royal Academy of Belgium, by M.

le Dr. Burggraeve. His arguments are not very persuasive, nor are the facts adduced numerous; but such as they are, our readers will find them in the *Bulletin de l'Académie Royale de Médecine de Belgique*, tome ii. No. 5.

Ergotin as a Remedy for Chronic Diarrhœa and Dysentery.—Dr Gros, of Bielau, reports forty-four cases in which this remedy was tried during an epidemic of dysentery: only one death occurred. Twenty-five were cases of the milder type; but they were such as often, when neglected, turn to the more virulent form. The ergotin was given either in twelve to fifteen grain doses by the rectum (with some bland substance), or in six grain doses by the stomach (in emulsion or other bland vehicle). Often this produced a rapid effect; in other cases it was not till after two or three days that amendment followed: the tenesmus then began to give way, the evacuations became fewer, the offensive smell of the fæces soon disappeared; and it was specially noted that the ergotin quickly reduced the quantity of *blood* in the stools, and also the amount of pseudo-membranous matter.

In chronic diarrhœa, both of children and adults, Hampel had also the opportunity of testing the effects of ergotin. To children the remedy was given in the form of lozenges. The effect of ergotin enemas in subduing symptoms referable to the colon and the rectum were specially noted. (*Der Praktische Artz.* 7, 1868.)

The Treatment of Itch in Children.—It is well known that the use of sulphur for the cure of itch is attended with much inconvenience in the case of children. Their tender skins often become irritated to a very inconvenient degree by the application of this substance. Dr. Monti, of Vienna, has tried three substitutes for sulphur. (1) Peruvian balsam is to be rubbed in, forty drops at a time, for half an hour, the process being commenced half an hour after the administration of a warm bath and friction with the well-known "green soap." This is repeated daily, and cures in four or five days. (2) Petroleum can be used: if it be employed pure, there will be an eczematous rash after a few applications. In the case of suckling infants it is desirable to dilute the petroleum with olive oil or glycerine (equal parts, or three of petroleum to one of the diluent). The whole body should be gently wiped over with a sponge or piece of rag moist with the fluid, two or three times daily. This cure, which should be concluded by a good bath and soaping, lasts from two to ten days. (3) Liquid styrax will cure in about the same time as the last-named remedy. An ounce of liquid styrax, two drachms of rectified spirit, and one drachm of olive oil are to be mixed; after a warm bath one quarter of this mixture is

to be carefully rubbed in. This is to be repeated at intervals till the cure is complete. This remedy has no influence on the eczema which often complicates scabies; the latter subsides, either by the mere removal of the existing cause, or by the use of soap baths, dusting the skin with starch, or smearing it with glycerine. *Styrax* may also be used, with good effect, in the form of a soap. (*Jahrbuch f. Kinderk.* I. 2.)

Glycerine applied by means of the Tampon, in Uterine Affections.—Dr. Fürst, of Franzensbad, recommends this treatment in a variety of cases. Cotton-wool, boiled quite clean, is tied up into a tampon with packthread, and is then moistened in hot water and wrung out. Half a drachm to one drachm of glycerine is then placed upon it, and the tampon is introduced into the vagina at bed-time. The glycerine seems to act partly in virtue of its hygroscopic properties. In hypertrophy of the uterus, especially when the elements of hypertrophy consist of ill-formed mucous connective tissue, and when the uterus is in a state of imperfect involution after childbirth, a considerable amount of watery discharge is provoked, and the womb becomes less hard, more movable, and smaller; granular ulcers dry up; and the purulent, ill-smelling, and corrosive discharge loses its bad characters. Pathological losses of the substance of the uterus, or artificial lesions, such as amputation of the cervix, and also the dilated condition of the os produced by hæmorrhage, are effectively treated with glycerine. The same substance, especially with the addition of one part of hydrochloric acid to eight or ten of the glycerine, is useful in keeping sweet the discharge which occurs during the application of sponge tests. Glycerine is effective also in the treatment of vaginismus. Finally, injections of glycerine into the cavity of the uterus are curative in certain forms of endometritis. (*Allgem. Wien. Ztg.* 13, 1868.)

Use of the Double-action Stomach-Pump in Gastric Diseases.—Dr. P. Reich, of Stuttgart, has applied this instrument to the treatment of chronic stomach diseases. He empties the stomach with the pump, washes it well out with water, and then injects various medicinal solutions, which are either left there, or after a time pumped out again. In cases of fermentative distension of the stomach, this process accomplishes a threefold end: it relieves the distension which mechanically produces distress; it removes products of acid fermentation, which are highly injurious to the mucous membrane; and it removes the matters which are the cause of the fermentation. The alleviation produced is not merely temporary; with perseverance, and with simultaneous attention to diet, it proves truly curative. In chronic catarrh of the stomach, also, with excess

of acid secretion, and a chronic gastric ulcer, this process removes a great obstacle to cure. Even in cases of gastric cancer, especially of the pylorus, the use of the stomach-pump is an important palliative. As regards the introduction of medicaments into the stomach in these diseases, the stomach-pump has decided advantages over swallowing. Larger quantities of astringent and other remedies can be placed directly, and without admixture or decomposition, in relation with the gastric mucous membrane, and may be left, for just so long as we like, in operation. It is of great advantage that the stomach should be first emptied of mucus, remains of food, &c. The author especially mentions alum and creasote as appropriate remedies to be applied in the above manner. (*Würtemb. Corresp. Blätt.*, June 11.)

Injections of Morphia in the Pains and After-pains of Labour.—Dr. Ernest Kormann read a paper on this subject before the *Gesellschaft für Geburtshülfe*, at Leipzig, which gives very interesting results as obtained by this treatment. The author does not in the least hesitate to inject morphia for the relief of labour-pains, when they are severe, especially in primiparæ, and also in those subjects who have contracted pelvis. He employs a solution of the sulphate of morphia, three grains to the drachm; it does not require any acidulation to keep the salt dissolved. He gives from one to three injections during the course of a labour; usually only one, however. The doses employed range from about $\frac{1}{4}$ to $\frac{3}{8}$ grain, and he has never had reason to think they did harm. They do not appear to interfere with the steady progress of the labour, though they often reduce the frequency of uterine contractions, when these have been what English people would call “niggling.” He thinks that they may be used either during the dilating or the expulsive stage of the labour; the former process they often actively aid. It is a remarkable though intelligible fact, that patients who have been injected during labour seldom have *after-pains*; but when the latter have occurred, injection is a most useful and valuable agent in procuring that repose which is so necessary to restore the woman’s strength after the fatigues of parturition. The locality which Kormann selects for injection is always the thigh. Besides the above general uses of the injection in parturient women, painful complications, and especially *cramps* of the muscles of the extremities, may be most effectively treated by this method. (*Monatschrift für Geburtshkunde*, August.)

Notes and Queries.¹

COMPRESSED AIR AS A THERAPEUTIC AGENT.—Those who have read Dr. Burdon-Sanderson's paper in our last issue will be glad to learn that the subject of the therapeutic value of compressed air has been taken up by M. Le Dr. Bertin of Montpellier, who has presented a volume on the subject to the French Academy. It would seem that this mode of treating disease has been less successful in France than in Germany.

CONSTIPATION TREATED BY VERATRUM VIRIDE.—In cases of obstinate constipation the tinct. ver. virid. has been lately found useful in doses of three drops four or five times a day.

BROMIDE OF POTASSIUM IN CHORDEE.—In a recent number of the *New York Medical Journal* Dr. W. F. Monroe published the results of his observations on this point. He had given the bromide in numerous cases of chordee. He states the following conclusions:—Of thirty-six cases there were only four in which the drug was effective; in the remainder it seemed to have no effect whatever. Even in the case in which it gave the best results, Dr. Monroe thinks its action was rather on the general nervous system than as a special anaphrodisiac.

A MIXTURE FOR DIPHTHERIA.—A physician has sent the following prescription to the *Chicago Medical Journal*. He believes the preparation to be antiseptic and tonic:—

℞ Tinct. Ferri Perchlor.		
Potass. Chlorat.	āā	ʒij
Morph. Muriat.		gr. j.
Acid. Muriatic dil.		ʒij
Aq. dest.		ʒij
Sympi		ʒij

Dose—A tablespoonful every second or third hour.

A CURE FOR EARACHE.—Tincture of digitalis has been recommended for this purpose. One or two drops are placed in the ear, the passage being then closed with a piece of cotton.

¹ The Editors, being desirous of making this department a useful medium of communication between practitioners, will be glad to receive short notes on theoretical or practical points in therapeutics,—brief jottings on those numerous queries which suggest themselves from time to time to a medical man as he "goes his rounds," but which he has neither the time nor, in some cases, the opportunity of answering. The Editors do not pledge themselves to reply to every question addressed to them, but they hope to make the "department" the means of supplying the information required, and this they can only effect by the hearty assistance of their readers.

SYSTEM AND ROUTINE.—Those who wish to read an interesting essay on these very important points in relation to the study of therapeutics will find a clever address upon the subject, by M. Axenfeld, in the *Revue des Cours scientifiques*, and also reprinted in the *Bulletin générale de Therapeutique*, September 15th.

CHINOVIC ACID.—Mr. John Stewart, of Newport, Fifeshire, inquires whether we can inform him of the doses in which this acid was used (by the author of the paper briefly quoted in *The Practitioner* for August) for the treatment of atonic diarrhoea, &c. We have referred to the original paper of Dr. Kerner in the *Deutsche Klinik* (Nos. 9 and 10, 1868), and we find that no dose of the acid, unfortunately, is specified. The chinovate of lime, which is used for much the same purposes, is recommended to be given in doses of two to eight grains every hour or two, in acute diarrhoea and dysenteric affections. It may possibly be in the power of some of our readers to inform our correspondent more specifically on this matter; but it appears, from Mr. Stewart's inquiries and our own, that chinovic acid is never used medicinally in this country. The acid exists in cinchona barks in the form of *chinovin*, in which it is combined with a peculiar sugar. Chinovin is an extra product in the process of quinine manufacture. It may be obtained in a state of purity by boiling bark with milk of lime and precipitating the decoction with hydrochloric acid; the precipitate is repeatedly dissolved in milk of lime, decolorized with animal charcoal, and reprecipitated with hydrochloric acid. Chinovic acid may be separated, as a sandy crystalline powder, by treating the alcoholic solution of chinovin with dry hydrochloric acid gas. Chinovate of lime is prepared by dissolving well-purified chinovin in milk of lime, filtering the solution, and evaporating it to dryness.

INOCULATION OF SNAKE-POISON AGAINST HYDROPHOBIA.—The extraordinary statements recently made in *Les Mondes*, to the effect that hydrophobia is unknown in Spain, because the peasants inoculate their children by allowing them to be bitten by snakes, received some credence from the scientific character of the journal in which they appeared. They have now, however, been denied. At a recent meeting of the French *Académie des Sciences* M. Ramon de la Sagra, a Spaniard, and a physiologist of considerable note, characterised the assertion as an impudent falsehood. Hydrophobia is common in Spain, both in the dog and the wolf, and no such terrible therapeutic means as that alleged is ever employed.

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¹ Any of the foreign works may be procured by application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

THE PRACTITIONER.

DECEMBER, 1868.

Original Communications.

ON THE USE OF ACONITE AS AN ANTIPHLOGISTIC.

BY SAMUEL WILKS, M.D.

THE mechanism of the body is of so complex a nature, and embraces in its various actions and functions so many kinds of operations, that physiology must need take cognizance of the laws which rule in nearly every department of natural science. Disease, which implies a deviation from the normal standard of health, necessarily exhibits phenomena of a most diverse kind; and in like manner it may be supposed that various agents, mechanical or chemical, including those of light, heat, and electricity, may all be employed beneficially to restore the body to its former integrity. It is for this reason that those who have made a wide study of disease have been unable to grasp the idea of the existence of one law which can be applicable to the treatment of all complaints. The method in which medicines act in the system constitutes one of the most interesting and important studies which can be undertaken; at present little is known on the subject, for it is highly improbable that many of them exert an influence on the body in so simple a manner as is supposed, and yet for necessary reasons we are forced to regard the most obvious action as the immediate and essential one. If we direct our minds to any tissue of the body, and think of the work which is going on in a single spot—the growth of cells, and the chemical changes between them and the blood, the vessels bringing the nutriment, and the nerves which regulate the supply, as well as, perhaps, some direct forces conveyed

through the nerves themselves—we must own that we are regarding an operation of a very complex kind. The process of growth is one and indivisible; but from the very constitution of our minds we are forced to analyse it, and, consequently, regard it as made up of different elements, each of which may be influenced separately by different agencies. Thus we consider that we can alter the condition of the blood which supplies the part with fluid, and operate on the nerves either to transmit new forces, or to regulate the flow through the vessels which pass to it.

There is sufficient room, no doubt, for those who regard the action of medicines as mostly chemical, when they are satisfied, for example, with the theory that lactic acid is the peccant cause for rheumatism, and that a remedy is to be found in the alkali which can neutralize it; or in the case of iodide of potassium acting as an absorbent of adventitious material, when it is seen that the presence of the salt in the blood is incompatible with good nutrition, but rather promotes atrophy; when it is observed that those parts suffer first which are most recently and lightly built: and thus, in a manner which is always marvellous to behold, the remedy is seen picking out the newly-formed and weakly structures, leaving the frame in its original integrity. Salines may act by simply giving a constituent to the blood which it requires for healthy nutrition, whilst in other cases, by affording increased secreting action to certain organs, may indirectly be the means of eradicating morbid states. These remedies are supposed also to act even under more simple laws of osmosis, and, by altering the specific gravity of the fluids, may explain the actions of some diuretics and purgatives.

There are some persons, however, who believe that our most potent remedies are to be found in those drugs whose direct action is on the nervous system; and certainly medicines like opium and digitalis are to be reckoned amongst the most remarkable constituents of our Pharmacopœia. It is, therefore, in the direction of neuro-pathology that the best advances are now expected to be made in therapeutics. Physiologists have, of late years, given more special attention to the action of the sympathetic nerve on the blood-vessels; we were formerly content to believe

that their sole duty was to rule over the viscera, but experiments prove that, as vaso-motor nerves, they control the blood supply through the arteries of the body, and thus directly affect nutrition. Dilatation of the vessels, and increased temperature, or diminution of temperature, with final atrophy, are now well known to result from experiments made on these nerves. There is thus opened up a new field of inquiry, both in pathology and therapeutics, since the morbid condition of so many organs and tissues may be dependent on an increased supply of blood on the one hand, or a diminished supply on the other.

For example, as in many nervous affections, an exalted or depressed function of the brain or spinal cord might be supposed to be dependent on an increased or diminished blood supply; so those agents which would act on the nerves to influence the vessels, either to contract or dilate them, would be the correct remedies: thus the reason which some practitioners give for the use of belladonna and strychnine. With the same object in view, the theory has suggested to some even a simpler method, and they have thought that, in the application of heat and cold, they could control the blood supply to the various organs, and by these simple agents be in possession of an almost universal remedy for disease. Experience is showing that these are valuable agents, even if they have not fulfilled all the objects which were expected from their use. Hitherto the best remedies have been those which time has proved to be beneficial, and which came into use regardless of any *à priori* consideration as to their *modus operandi*. Amongst the medicines which have a marked and decided control over nervous action, the most striking are opium, quinine, aconite, digitalis, &c. All these have, under peculiar circumstances, a marked effect in controlling inflammatory processes, and the accompanying febrile action.

In a part of the body which is inflamed the blood-vessels are dilated, but whether this condition is to be regarded as the first stage, or simply as a necessary accompaniment to increased cell growth, according to Virchow, does not much concern the argument therapeutically, since, as a matter of fact, a remedy which acts on the vessels to their contraction, tends to arrest the inflammatory process. Thus the application of nitrate of silver

to the eye in conjunctivitis, or to the skin in erysipelas, will contract the vessels and allay the inflammation ; also the strapping of a joint or testis will effect the same in a mechanical manner. I suppose it must be admitted that, if an internal remedy could act on the vessels of the conjunctiva in the same way as a local one, to arrest the inflammation, it would be deserving of the name antiphlogistic ; and if so, the administration of iron, now a very favourite remedy for erysipelas, if it act by constringing the vessels must be entitled to the same name. At present, I believe, the usual explanation of its beneficial action is, that it improves the condition of the morbid blood.

There would then appear nothing remarkable in the idea of an antiphlogistic remedy, or one that should so act on the nerves, and through them on the blood-vessels, as to actually arrest an inflammatory process. If we remember the remarkable effects which result from the administration of quinine in some febrile disorders, we are led to the conviction that its mode of action must have been in the manner indicated ; thus I have as much reason to believe that I have cut short a case of acute rheumatism by this drug, as I have by the use of any of the ordinary remedies. In the same sense, I should say that opium is the most important anti-inflammatory remedy at present known. It never could have maintained its position as a medicine in all forms of inflammation unless this had been its true nature. In various forms of inflammation of the abdomen and chest, it is a remedy almost universally given ; and if administered less in affection of the pulmonary mucous membrane, it is only because there is a fear that by lowering the respiratory process it may tend to prevent expectoration ; but it is in these very maladies that its effects are most striking. I have seen the case of a child suffering from bronchitis, and supposed to be dying from an over-dose of laudanum, who, from time to time, fetched what appeared to be its last breath, during a most anxious period of two or three hours, and then recovered from the effects of the medicine, and, what was most extraordinary, from the disease at the same time. I have seen a somewhat similar case of croup, where there was a narrow escape of poisoning by opium, and a sudden arrest of the symptoms. How a sore throat or bad cold can be at once checked by a Dover's powder, or dose of

laudanum, is in every one's experience ; as also, how an ulcer on the surface of the body will sometimes rapidly heal under the influence of opium. This well-known fact would, it might be thought, have given us a hint as to the controlling power of the drug in nutritive processes. I cannot refrain from mentioning a case which came under my own notice, where the remedy saved the patient's life almost as directly as if he had been snatched out of the river when on the verge of drowning. A friend, seventy-five years of age, was knocked down in the street and struck upon the leg ; the skin gave way, ulceration ensued, and in a few days nearly the whole of the limb, from the knee to the ankle, was denuded. He took to his bed, and I visited him to take a final farewell. I found the ulcer still rapidly spreading in all directions, and I was asked to prescribe. I therefore wrote to his medical attendant, stating that, following the footsteps of my old master Mr. Aston Key, I should have ordered in such a case a grain of opium every four hours. This was done, and I heard in a day or two that the old gentleman was better, and when I visited him at the end of another week, I found a most remarkable change had taken place ; not only had the ulcerative process stopped, but healing had already commenced. After this, repair went on rapidly, and he was soon able to leave his bed, and continue his out-of-door exercise.

Since, therefore, we see this very evident action of opium on nutritive processes, and as we already know that this drug is of service in various inflammatory processes, we might advance a step further, and infer the possibility of opium being able, in a very large dose, to arrest such a disease as pneumonia at its onset. In speaking of this disease, and some of the usual remedies for it, I am reminded of antimony, which has long had the reputation of being an antiphlogistic. It is one which I still prescribe, and believe that its action is beneficial. It may be supposed, like many other of the metals, to exert a contractile influence over the smaller arteries, and thus, in the same way as lead or iron, tend to arrest hæmorrhage.

Amongst other remedies which have had a long-timed reputation, as capable of depressing the heart's action and lowering the circulation, is aconite, but one which has never come into general use on account of its highly poisonous nature, and from want of precise rules as to the class of cases demanding its administra-

tion. There have, however, always been some in the profession who have attributed the very highest value to its use; there is nothing remarkable in this, when I know, with such a time-honoured remedy as digitalis, there are many medical men to be found who are ignorant of the indications for its employment; and yet it is a drug which may be put before any others in the Pharmacopœia, as showing the most striking effects from its administration. As regards aconite, I am acquainted with two medical men who in the course of a long practice have been in the habit of daily using it, but have not cared to speak of it too openly for fear of having their names associated with members of an eminently quack system; and it may be remembered that the late Mr. Liston brought no little odium upon himself on account of his advocacy of the use of this drug in erysipelas.

I myself have been in the habit for some years past of occasionally ordering this remedy, when favourable cases occurred, but unfortunately have preserved no notes of them. As a rule, hospital practice does not afford a good opportunity for the trial of the drug, as it is only at the onset of an inflammatory process that it is likely to be beneficial; it must, therefore, be left to gentlemen in general practice to efficiently put its properties to the test. I will give a few cases where I have a firm conviction that the medicine acted beneficially, and I may add I am still engaged in the trial. Aconite, it may be remembered, has a most powerful depressant influence on the system: in those persons who have accidentally taken a poisonous dose, the heart action has become enfeebled and the pulse very slow; it is supposed, therefore, to have a very direct effect on the circulating system, through nervous agency: but whether the febrile condition, which is diminished under its use, be due to the simple lowering of the heart's action, or to a more immediate contraction of the blood-vessels, may be a question, but I believe that the latter opinion is the one most usually held.

Pneumonia.—John D——, aged 17, admitted into the hospital Dec. 31, 1867. He was a healthy lad, and by employment a groom. Three days before admission he was exposed to wet and cold, when he was seized with a shivering fit and catching pain in the side, followed by great headache and loss of appetite. On admission his appearance at once denoted the malady from which he was suffering; his face was flushed, his breathing quick

and catching; and in a high state of fever; pulse 88. At the lower part of the left side the chest was dull on percussion, and there was ægophonic bronchophony. He was ordered to take three drops of tr. aconite every four hours, and to be put on low diet. On the following day, Jan. 1, he was not seen, but on Jan. 2 the change in his appearance was most marked, and it was at once evident that the inflammatory process had ceased; he had regained his natural look; the skin was cool, tongue cleaning, and the pulse at 60. An examination of the chest showed that there had been no advance of the pneumonia, but that the affected part was recovering itself. The medicine was omitted; he made a rapid convalescence, and left the hospital well on Jan. 13.

Acute Rheumatism.—Frances C—, aged 15, admitted to the hospital July 17. All the joints swollen, red, and so acutely painful that an accidental jarring of the bed forced her to cry out; and with this all the other usual symptoms of rheumatic fever; pulse 104. She was ordered two drops of the pharmacopœial tincture, every three hours, and to be continued regularly through day and night. This was done, and administered without intermission during the day and night of the 18th, and during the day of the 19th. In the evening she became delirious and so strange in her manner that the house surgeon was sent for, and ordered a placebo. He informed me on the following morning that he believed she was hysterical, and was quite unaware that she was the subject of acute rheumatism, as he found her lying on her side with her arms over her head, screaming out and moving about in a manner which is seldom seen when the joints are inflamed or painful. When I saw her on the following day, I observed a strangeness and restlessness in her manner, and she complained of a burning in her throat and pain in her back, but all trace of the rheumatism was gone. I had no hesitation in attributing the new symptoms to the effects of the remedy. She subsequently had a slight pain in the ankle and wrist, and then rapidly convalesced. She was walking about the ward on August 1.

Acute Rheumatism.—John M—, æt. 16, admitted Sept. 23. He had been ill three days with febrile disturbance and pains in the limb. I was unable to say whether it was the onset of rheumatism, or merely a “bad cold,” which is technically called

"febris catarrhalis rheumatica." He had had rheumatism before, and there was present a slight systolic murmur; saline only was ordered. On the 24th he was much worse; he had a sweating skin, with the characteristic rheumatic odour, with pains in all his joints, and pulse 104, temperature 102°, and the case was now clear. He was ordered five drops of tr. aconite every four hours, night and day. I did not see him on the 25th, but on the 26th I was much struck with his altered condition: instead of finding the disease more developed, the pains in the limbs had diminished, and the fever was disappearing; the most striking fact being that the pulse was 64, having been reduced by 40 beats, the temperature 99°. He had taken ten doses of the medicine. I now ordered it to be taken only three times daily. He continued to improve, and on the 28th appeared tolerably well; pulse 60. He then omitted the aconite and continued to convalesce; when, on Oct. 8th, being dissatisfied at taking no medicine, I ordered him some quinine. On Oct. 12th he said he was very unwell, and I then ordered him an aperient. On Oct. 15th I found him in bed with a relapse of the rheumatism, complaining of all the symptoms as on admission: pains in the joints, hot and sweaty skin; pulse 124. I again ordered the tr. aconite to be taken every four hours. I did not see him on the 16th, but on the 17th all the febrile symptoms were subsiding, and the pulse was down to 80. On the 18th it was 72, when I omitted the medicine. After this he convalesced and left his bed, though he still complained of occasional pain in the knee or wrist. His pulse was now always between 80 and 90.

Whooping Cough (?) and Bronchitis.—Caroline C——, aged 20, admitted May 31; had been ailing with a severe cough for two months, and what her medical attendant believed to be pertussis. She had got very thin; had considerable dyspnœa, face dusky, and eyes swollen; had severe paroxysms of coughing, which lasted some minutes, in which she whooped, and followed by the expectoration of a large quantity of purulent phlegm. She occasionally vomited and spat up some blood. I ordered her tr. belladonnæ ℥x every four hours. She gradually became worse, and on June 4 I found her sitting up in bed with much dyspnœa, cheeks and lips livid, mucous râles throughout the chest, tongue furred, pulse 144. I now ordered her tr. aconite

℥iv every four hours. June 5, seemed little better; pulse 140, respiration 37. June 6, decidedly better; pulse 100. On June 8, still improving, although expectorating very much. In a few days the cough less, and patient altogether better; some cascarrilla mixture was ordered, and she gradually gained strength and flesh, and left tolerably well at the end of the month.

Chronic Catarrh.—A gentleman came to my house complaining of a bad cold which he had had for two or three weeks, and could not get rid of; he had running from the nose and eyes, with pain over the forehead, as is seen from the effects of the iodide of potassium. He had taken all the ordinary medicines without effect, and therefore I thought it a good case to make trial of the aconite, which I ordered him in ℥ 5 doses every four hours. He called on me three days afterwards, when all the symptoms were subsiding. It is probable that opium might have had the same result.

In giving the above cases I should mention that I have given aconite to other cases without success, but they were scarcely comparable with the foregoing. Those of late were the cases of two women of middle age with subacute rheumatic gout of three weeks' duration, and in which, there being no marked effect, in a few days I omitted it. In a case of pneumonia of one lung the stages were passed through in the usual manner whilst the remedy was being taken, no obvious effect being produced. Also, in a girl who came in desperately ill with acute rheumatism and pericarditis, I gave a few doses, and then thought it right to omit it for more approved remedies. I now regret this, as the case would have afforded a good example for the trial of the remedy.

In the successful cases I have given above, I should direct attention more especially to the first three, where I cannot but doubt of the efficacy of the remedy, seeing that, besides the subsidence of the disease which was being treated, there was such a marked influence on the pulse. This cannot be accounted for except by the action of the remedy. Their publication cannot at present prove much, but they tend to corroborate the opinion of those who have used aconite beneficially, and may tend to further its employment in the hands of others.

ON THE TREATMENT OF THE THREE MOST TROUBLESOME FORMS OF PURULENT OPHTHALMIA.

BY GEORGE LAWSON, F.R.C.S.

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I HAVE selected for this paper the treatment of the three forms of purulent ophthalmia which are commonly met with both in public and private practice—viz. “The Purulent Ophthalmia of Newly-born Infants;” “The Purulent or Contagious Ophthalmia,” which is so frequently seen amongst soldiers and in our large pauper schools; and “Gonorrhœal Ophthalmia.” For the efficient treatment of each, prompt and decided remedies are required, which should be persevered in with that confidence which only a perfect knowledge of the disease can give to the practitioner. I shall presume that the symptoms and progress of these varieties of purulent ophthalmia are well known, and shall, therefore, confine myself, as far as practicable, to the treatment which should be adopted, merely alluding to certain peculiarities which seem to characterise each form.

PURULENT OPHTHALMIA OF NEWLY-BORN INFANTS is one of the most important diseases which the surgeon can have under his care. When rightly treated it is one of the most remedial; but when neglected, or what is often worse, when unsuitable and improper remedies are used, it is one of the most disastrous of all the inflammatory affections of the eye. The responsibility of any one undertaking a case of purulent ophthalmia, who is not thoroughly acquainted with its nature and treatment, is very great. Many a useful life has been blighted in the first month of its existence by irreparable blindness, which might have been prevented, if the simple means, which seldom fail to arrest this formidable disease, had been rightly applied. It is

sad, indeed, to see the many children blind in both eyes from purulent ophthalmia, who are brought every year to the Moorfields Ophthalmic Hospital with the faint hope of gaining for them only a glimmer of light; but the disease has done its worst—it has passed the stage when treatment would have availed: for the eyes are irretrievably blind. The treatment of purulent ophthalmia ought to be almost a “household word,” for it is cheap, simple, and within the grasp of all. It is, however, by many totally unappreciated, and by unsuitable applications the progress of the disease is often favoured, and eyes are lost.

Treatment.—The indications for treatment are to wash away the discharge from the eye as often as it collects, and to use some astringent lotion to arrest the re-secretion of the purulent matter. Lotions of alum, or of sulphate of zinc and alum, and drops of nitrate of silver, are the most useful astringents in purulent ophthalmia. The lotion which I generally use is one of aluminis gr. vj ad aquæ ʒj. The mode, however, of applying the remedies is of as much importance as the remedies themselves. The lotion should be gently squirted into the eye with an india-rubber syringe with an ivory nozzle, or with a small glass syringe, every half hour or hour, according to the severity of the case, the object being to thoroughly cleanse the eye from all discharge as often as it is re-secreted. This treatment should be pursued by night as well as by day. The intervals between the use of the lotion may be increased, as the discharge decreases in quantity. The carrying out of these instructions should be entrusted solely to the nurse, as the mother so soon after her confinement is unfitted for the duty, and rest is also essential for her in order to insure a due supply of milk for the child. The easiest way of applying the lotion is as follows: the nurse should lay the child on her lap, turning its head a little to one side or the other, according to the eye she is going to wash out. With the thumb and finger of her left hand she gently separates the lids, whilst with the right hand she squirts a stream of the lotion into the eye from the nasal side, allowing it to run away from between the lids on to a soft napkin which she has placed under the child's head to receive it. If the case is very severe the surgeon should see the

child once or twice a day himself, and having first washed the eye thoroughly from all discharge with a stream of cold water, he should drop into it two or three drops of a solution of nitrate of silver, gr. ij, ad aquæ ʒj, and order the alum lotion to be continued as directed during his absence. In some cases where the nurse is very awkward, and cannot rightly use the lotion with a syringe, it may be efficiently applied by means of a soft camel's hair brush. From time to time a little unguent. cetacei should be smeared on the edges of the lids to prevent their gumming together.

PURULENT OR CONTAGIOUS OPHTHALMIA.—It has been called also *Egyptian Ophthalmia*, from its being ever present in Egypt, where the most severe types of the disease are to be constantly found. The characteristics of this disease are that it is purulent and contagious. In its mild form it closely resembles catarrhal ophthalmia, for which indeed it may be mistaken; but in the worst cases it almost equals in severity the gonorrhœal affection of the eyes. The peculiar tendency of purulent ophthalmia is to attack masses of people who are congregated together, and living without due attention to cleanliness and ventilation. Hence it is that this disease has frequently broke out amongst soldiers in barracks; amongst the poor in workhouses, and in large pauper schools in the country. Although purulent ophthalmia is undoubtedly propagated by inoculation, yet there is abundant evidence to show that it may be epidemic, and spread without any direct conveyance of the purulent secretion from eye to eye.

Treatment.—In all outbreaks of this disease sanitary precautions should be at once taken to prevent it spreading, and the bad cases should be kept apart from the others. A daily inspection should be also made of those who are living in the same community, in order to treat each fresh case as soon as the early symptoms show themselves. A mild case of purulent ophthalmia may be treated with a lotion of aluminis gr. iv ad aquæ ʒj; or with zinci sulphatis gr. j, aluminis gr. iij, aquæ ʒj; which should be used every two or three hours, the patient taking care that with each application a little is allowed to run into the eyes. In the intervals between using the lotion,

the eyes may be frequently bathed with cold or iced water, to keep them free from discharge. A solution of nitrate of silver, gr. j or gr. ij, ad aquæ $\bar{3}$ j, is very useful, and especially in those cases where there is much chemosis of the conjunctiva, or swelling of the lids. To prevent the gumming together of the eyelids during sleep, a little unguent. cetacei should be smeared along their tarsal borders every night.

At the commencement of the attack the bowels should be well acted on by some purgative, and, if the patient is hot and thirsty, an alkaline or effervescing draught may be prescribed; but as a rule, tonics, such as quinine, iron, or bark, will be required, and these should be continued during the progress of the ophthalmia. The disease is very depressing, and the tendency to ulceration and sloughing of the cornea is increased as the vital energies of the patient are lowered.

If the purulent ophthalmia is very severe, the plan of treatment recommended for gonorrhœal ophthalmia in the next section, pp. 342-3, should be pursued.

After the severity of the disease has been arrested, there is apt to remain a muco-purulent discharge, which will often obstinately resist all treatment for many weeks, or even months. For this condition I have frequently found much benefit from the use of a few drops of zinci chlorid. gr. j ad aquæ $\bar{3}$ j, dropped twice a day into the eye. When this chronic discharge is persistent, the upper lids should be everted, and it will then be frequently found that it is due to a granular state of the palpebral conjunctiva, induced by the disease. This granular condition of the lids is one of the most frequent results of purulent ophthalmia, and one of the most intractable diseases the surgeon can be called upon to treat. Without entering upon the numerous remedies which have been tried and vaunted as certain cures, I will only state the one mode of treatment with which I have had the most reason to be satisfied. It is the application of a strong solution of nitrate of silver, varying in strength, according to the severity of the case, from gr. v to gr. xx ad aquæ $\bar{3}$ j, and after waiting thirty or forty seconds to allow it to take full effect, washing off the surplus with a stream of cold water, or with a weak solution of common salt and water.

The way in which the solution should be applied is as follows : The patient is to be seated in a chair, and the surgeon, standing behind him, with a probe everts the upper lid so as fully to expose the palpebral conjunctiva, over the surface of which he paints with a camel's hair brush the solution of the nitrate of silver, taking care to apply it thoroughly to the reflection of conjunctiva which forms the oculo-palpebral fold. After waiting for about half a minute, he then, with a syringe, gently squirts over the granular surface a stream of cold water, or what is better, a solution of common salt of about the strength of gr. x, ad aquæ ʒj, to wash away and neutralize all the surplus nitrate of silver, so as to prevent its irritating the eye, or blackening the ocular conjunctiva, a misfortune I have seen occur when strong solutions of the caustic have been frequently used without taking these precautions.

GONORRHŒAL OPHTHALMIA is an acute specific inflammation of the conjunctiva of the lids and globe, induced by the inoculation of some gonorrhœal matter into the eye. It is characterised by a profuse purulent discharge from between the lids, which is of a yellow colour, and exactly corresponds in appearance with that which flows from the urethra. The disease is rapid in its progress, and very destructive; unless it is soon checked, the eye is lost.

Treatment.—A few years ago the treatment consisted in excessive bleedings from the arm, and in the use of strong depressing medicines. Experience has shown the error of such proceedings, and by now adopting a directly opposite course, a far larger proportion of cases recover with good and useful eyes. In gonorrhœal ophthalmia the treatment must be constitutional and local.

Constitutional Treatment.—From the very commencement of the attack the strength of the patient must be supported by tonics, diffusible stimuli, and a liberal diet. The whole history of a gonorrhœal ophthalmia is of a depressing character. The patient, generally suffering from gonorrhœa at the time the eyes become inoculated, is, from the nature of his complaint, and the treatment adopted to cure it, below the standard of health. The disease itself is also very exhausting; but the prospect of loss of vision, with the utter annihilation of all

future prospects, adds to the sense of loneliness and despair. The fact that the patient is suffering from a severe urethral discharge, will not forbid the free use of tonics and stimulants. The danger of ulceration and sloughing of the cornea is increased as the vital powers are depressed. Having therefore first acted freely on the bowels by a moderate purgative, quinine in 2-gr. doses, or cinchona with the mineral acids, should be given every four hours. If there is much pain or irritability, opium should be prescribed, either in small quantities frequently repeated, or in one full dose at bed-time. When there is heat of skin, with thirst and a furred tongue, an effervescing mixture with ammonia may be advantageously ordered before prescribing the direct tonics. The diet should be one with meat or beef-tea, and with a certain amount of wine or brandy, according to the strength of the patient.

Local Treatment.—The best applications are nitrate of silver, lotions of alum, or of sulphate of zinc and alum, and cold.

1. *Nitrate of Silver.*—This is best used in the form of solution, varying in strength from gr. x to gr. xxx, ad aquæ ʒj, according to the severity of the case. The lids should be everted, and the conjunctival surfaces painted over with the solution, which should be allowed to remain a few seconds, so as to whiten the parts, and be then washed off in the manner described at page 342.

This should be repeated once daily, and in very bad cases a second application may be necessary. When the lids are so swollen that they cannot be everted, two or three drops of a weaker solution of nitrate of silver, from gr. ij ad gr. x, ad aquæ ʒj, may be dropped twice a day into the eye, after it has been first cleansed by syringing away the discharge with cold water.

2. *Lotions of Alum.*—Gr. vj ad aquæ ʒj, or of sulphate of zinc and alum, of the proportions mentioned at page 340, should be used at least once every hour to wash away the discharge as often as it accumulates. The lotion should be gently injected over the surface of the globe with a syringe or india-rubber bottle, so as thoroughly to wash away all purulent matter at each application.

3. *Cold* is very grateful to the patient, and may be applied

during the intervals between using the lotion, by placing a fold of lint, wet with iced water, over the eyelids, and changing it as often as it becomes hot or dry. The patient may also be allowed to wash away the discharge as fast as it exudes from between the lids with a piece of linen dipped in the iced water. By a steady perseverance in this line of treatment the best chance of saving the eye is afforded to the patient, but the disease is frequently of so virulent a character, that in spite of all remedies, and the most judicious management, the cornea sloughs, and the eye, for all useful purposes, is irretrievably lost.

CONTRIBUTIONS TO THE ELECTRICAL TREATMENT OF PROGRESSIVE MUSCULAR ATROPHY.

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HAVING, during the last two years, had under my observation ten cases of Progressive Muscular Atrophy, all of which have been treated mainly (and most of them solely) by electricity, I give a short report of these cases, as a contribution towards the study of the therapeutics of the affection.

But, in the first place, I must remark that the way in which this disease—"progressive muscular atrophy," or "Cruveilhier's paralysis"—has been dealt with by English writers is somewhat unfortunate. Thus Mr. Solly,¹ in treating of "Scrivener's palsy," has described cases of "Writers' cramp" and "progressive muscular atrophy" together, and appears to ignore the differences between them. This writer recommends *rest* as the main element in the successful treatment of the cases he describes. Every reader of the admirable article on "Writers' cramp" in the "System of Medicine" will recognise that some of his cases really belonged to this disease; but his second case was surely one of "Cruveilhier's paralysis,"—in which affection it will be admitted that rest alone is incapable of effecting a cure.

Nor does the "System of Medicine" itself contain an account of progressive muscular atrophy which is in all respects satisfactory, in my opinion. The article on this subject—"Wasting Palsy," as it is termed—is from the pen of Dr. Roberts, who had

¹ *Lancet*, 1864, ii. p. 739; 1865, i. pp. 85, 113.

previously written an able and original monograph on the disease. But, unfortunately, some of his conclusions are vitiated by the introduction of cases which seem to me to be undoubtedly distinct from those of true "Cruveilhier's paralysis." Dr. Roberts lays great stress on the influence of consanguinity in the production of the disease; and in the work above referred to he gives a table containing several cases in which hereditary transmission was observed. But within the last few years Duchenne and others have shown that there is an affection, essentially distinct from progressive muscular atrophy, which affection is apt to attack in succession all the males in a family, and which M. Duchenne describes under the name of "*Paralysie musculaire pseudo-hypertrophique*," or "*Paralysie myo-sclérotique*." On looking through Dr. Roberts' table we find that almost all the cases in which consanguinity or hereditary transmission was observed were such as M. Duchenne has described. If we exclude these cases (of which those recorded by Dr. Meryon are examples), we have left a series in which the influence of hereditary transmission or consanguinity is scarcely discoverable. Among all the cases recorded, perhaps, the most marked instance is one given by M. Duchenne; M. R——, æt. 22, presenting an affection of the *trapezii*, *rhomboidei*, *latissimi*, and *serrati*; his great-grandfather at the age of 20-22, grandfather at the age of 24, father at the age of 17, had all suffered from a similar form of paralysis.

I am inclined, indeed, to draw rather strictly the line of demarcation between other more or less vague forms of paralysis and "progressive muscular atrophy." In all the cases which have come under my observation the disease has attacked primarily the muscles of the upper extremity, beginning either in those of the hands, or in those of the shoulders, especially the deltoids, trapezii, &c. I am aware that Trousseau, in his Clinical Lectures, speaks of the disease as commencing sometimes in the lower limbs. But I am inclined to think that such cases may be essentially distinct from those of the true Cruveilhier's paralysis.

The distinction between these several forms of disease is not of merely pathological interest. There is every reason to believe that their causes are unlike, and that they require different methods of treatment.

During the last two years, as I have stated, there have been admitted into the wards of Guy's Hospital ten cases of Cruveilhier's paralysis—seven of which cases were indisputable and typical examples of the disease: of these five were treated by the continuous current alone; in two both the continuous current and the induced current were used; in three the induced current only was employed.

In giving brief notes of these cases, I will first mention those which have been treated by the *continuous current* alone, after the method introduced by Remak. This consists in the employment of a "constant" battery, having 100 cells, of which a variable number are used, according to circumstances. One pole, the positive, is applied to the back of the head or neck, generally to the mastoid process; the other, or negative pole, is placed over the spine, not higher than the fifth cervical vertebra. When this is done, contractions are sometimes observed in the fingers, or in other paralysed parts,—which contractions Remak has termed "diplegic." The current is allowed to pass for a quarter of an hour at a time, and its application is repeated daily. This method appears to be entirely empirical, having no theoretical foundation whatever; but it must be admitted that in some cases success justifies its use.

CASES TREATED BY THE CONTINUOUS CURRENT.

Case I. (reported by my clinical clerk, Mr. Bransford Edwards).—G. P. H.—, æt. 27, admitted into Clinical Ward, under my care, June 12th, 1867. He is a harness maker. About eight weeks ago he first began to feel weakness in his arms, and became unable to grasp firmly with his hands. He also had *tingling* sensations in his arms. The muscles of the fore-arms, except the supinator longus, were considerably atrophied; and the interossei, and other muscles of the hand, were also much wasted. The movements of the hands were very imperfect; for instance, he had great difficulty in unbuttoning his shirt. Tremor was not present in any marked degree; I think I observed it slightly in one of the muscles of the left fore-arm. On testing the muscles with the continuous current, it was found that thirty-five to forty cells were required to produce contractions in the extensors of the fore-arm; whereas the biceps reacted to twenty cells. The medicine which was prescribed for him, besides an occasional purgative, was a mixture containing three grains of iodide of potassium, which he took three times a day for seven days, when it was discontinued, in order that the value of the electrical treatment might be more surely tested. This treatment consisted in the application of the continuous current to the spine (according to Remak's method) every day, for fifteen minutes at a time. It produced a strong galvanic taste, and a tingling sensation in the right arm (the electrode was

applied beneath the *right* auricle). The fore-arms were wrapped in cotton-wool, and placed upon splints. After seven days of the treatment the splints were removed, and it was then found that there was decidedly more power in the grasp. At the end of sixteen days he could dress himself with ease, and could write tolerably well. He could not bear so strong a current as at first; twenty-five cells now produced distinct contractions in the arms and legs simultaneously. The muscles were fast regaining their firmness and tone. He continued to improve. On August 22, it is noted that he could write several letters in the day. He went out nearly well, on Sept. 21, 1867. I have since heard (Oct. 1868) that he has remained free from any further symptoms of the disease. Besides the affection of the arms, this man had likewise weakness of the lower limbs; from this he recovered at the same time.

Case II. (reported by Mr. Colson).—J. H——, æt. 27. The disease had begun two years before, with numbness and coldness in the thumb of the right hand, gradually extending to the other fingers, and to the fore-arm. Subsequently the left hand became affected, but to a less degree. He was in the army, and therefore was not called on to use his hands unduly. On his admission the affected muscles were found to be greatly wasted, the thenar and hypothenar eminences being quite hollowed out. He had more loss of power on getting out of bed in the morning than at any other time. He was ordered to take julep. iodinii comp., and to use the continuous current; no marked improvement, however, took place, and he went out on Dec. 31, 1867. He continued to attend as an out-patient, but without result, and when I last saw him he was still *in statu quo*.

Case III. (reported by Mr. H. K. King).—W. R——, æt. 49, a saddler, admitted into the Clinical Ward, under Dr. Moxon's care,¹ July 2, 1867. For about twelve months he had noticed his thumb to be getting weak; and for six months he had found that he had difficulty in holding a pen. There was much wasting of the flexors of the fore-arms, and of the thumb muscles. He could not grasp with the thumb, nor could he extend the last two joints of the fingers. The case, in fact, was a well-marked example of Cruveilhier's paralysis. Treatment with the continuous current was commenced on July 8. It led to no very decided improvement. He went out on Sept. 9.

In the next case, the disease was far more widely diffused than usual, affecting the muscles of speech and deglutition, and those of the lower as well as of the upper limbs. This is the only case which has terminated fatally while under my observation.

Case IV. (reported by Mr. Mallam).—W. C——, æt. 46, attended for some time among my out-patients, and was admitted under Dr. Wilks' care, into Stephen Ward, Nov. 9, 1867. He had loss of power in both arms and legs. The muscles generally were wasted, but more particularly the interossei of the left hand; the wrists dropped, the fingers were flexed. His face also had a vacant look, he could speak only very indistinctly; the saliva ran from his mouth. He had considerable difficulty in deglutition. There was decided loss of power in

¹ My thanks are due to Dr. Wilks and Dr. Moxon for their readily accorded permission to me to quote Cases III. IV. and VIII.

the tongue, which was soft and flabby. The continuous current was used, but without decided benefit. He died on Dec. 28.

In the case which follows there were, besides an affection of the hands exactly like that seen in Cruveilhier's paralysis, a condition of rigidity with spasms in the lower limbs, and a general loss of bodily power, which I have never seen or read of as occurring in any other case of the disease.

Case V.—S. S——, æt. 32, admitted into the Clinical Ward, under my care, June 26, 1867. The history she gave was as follows:—Three years before, while pregnant, she had lost power in the second finger of the right hand. After her confinement she quite recovered, and remained well until eleven months ago. Being then six weeks pregnant, she was attacked with severe pains about the elbows, and soon lost all power in her arms. About a month later, her legs became affected with weakness. She was treated for lead-poisoning. Afterwards she began to suffer from spasm and rigidity of the legs. At the birth of her child, four months ago, she was in an utterly helpless condition, unable to move hand or foot. Since then she has recovered some amount of power in her arms. Her account seemed obscure, but there was no doubt that the state of her upper limbs, on her admission, resembled that seen in Cruveilhier's paralysis. The second and third phalanges could not be extended, so that the hands had a well-marked "griffin's-claw" appearance. She could separate the fingers tolerably well, but the interossei were much wasted. She had very little power in her arms, but could perform any motion feebly. The lower limbs were affected in a way entirely different. They were almost entirely paralysed, the only voluntary movement being slight contraction of the great toe. They were also very rigid, and were frequently affected with clonic spasms; she complained of a feeling of numbness as high as the second rib, but there was not actual anæsthesia. She was at first ordered to take extract of belladonna in doses of a quarter of a grain, afterwards increased to half a grain, four times a day. On the 1st of July, however, the medicine was left off, and galvanism was had recourse to. I was unable in the first instance to employ the continuous current, on account of the difficulty of moving her into the electrifying room. Faradisation was therefore used; the muscles of the fore-arms and hands were found to respond well to the current, except the flexor sublimis and the flexor profundus, which reacted very feebly, if at all. In the legs the muscles responded to the current, and reflex spasms were produced. By the 13th of July it was noted that she could extend the first and second fingers of both hands rather better. The convulsive movements of the legs had also been less since the treatment was commenced. On July 19 she was moved into Charity Ward to be near the electrifying room, and from this time the continuous current was made use of every day in Remak's method. My clinical clerk, Mr. B. Edwards, applied it himself with the utmost care and attention. The positive pole was placed on alternate days in either mastoid fossa, and contractions were observed on the arm of the same side during its application. At the end of a month a little improvement had occurred in the right hand. The electricity was still persevered with.

In the hope of reducing the spasms of the lower limbs, I tried first the succus conii (in doses raised to $\frac{3}{4}$ three times a day), and subsequently the ext. physostigmatis, in doses of $\frac{1}{2}$ of a grain, gradually raised to $\frac{1}{4}$ of a grain, three times a day.

By Oct. 1 the state of her hands had greatly improved, so that she could use a needle with ease. Her legs still remained stiff, but there were no longer the painful spasms in them. She could turn in bed, and sit up without assistance. She remained in the hospital until Dec. 27, when she went home nearly well. She could extend all her fingers, except the left little finger, and even that sometimes. She could get out of bed into a chair, and sit up for some hours, keeping her feet on the ground. While in bed, she could gradually extend both her legs, although they were still generally drawn up. The improvement in the legs had taken place almost entirely in the last six weeks. During this time the only treatment had been the use of the continuous current and the administration of the mist. quiniæ.

I have since heard that she is able to walk about at home.

CASES TREATED BY INDUCED CURRENTS.

Case VI. (from notes by Mr. Barry).—G. L——, æt. 53, admitted under my care, Feb. 6, 1867, with very advanced progressive muscular atrophy of the upper limbs, and a similar affection commencing in the thighs, as was shown by muscular tremors and shooting pains. The disease had begun four months before. When this patient was in the hospital, the continuous current apparatus was not available, and therefore the affected parts were faradised as regularly as possible. The biceps was the only muscle of the upper limb in which distinct contractions were produced by the induced current. He went out on June 4, unrelieved. After returning home he improved considerably, so far as the lower limbs were concerned. I went to see him at Orpington in the course of the summer; and he walked with me for a mile, or a mile and a half. His arms were still *in statu quo*. I have since heard that he is dead.

This man was a plumber, and had a well-marked blue line on the gums. I at first regarded his case as one of lead paralysis, but I think there is little doubt that this view was incorrect. He had had very little to do with lead for two years before; he had never had colic; there was not the usual dropping of the wrists, flexion and extension being impaired more equally than is the case in lead paralysis; he had taken iodide of potassium as an out-patient without benefit; and the intractability of the symptoms is quite unlike what one sees in lead paralysis. It is to be regretted that we could not test the action of continuous currents on the affected limbs; their effects are supposed to afford a critical distinction between the two diseases.

Case VII. (from notes by Mr. Chapman).—G. M——, æt. 47, admitted under my care March 13, 1867. He was affected with well-marked progressive muscular atrophy of seven months' duration. The muscles of the shoulders were much wasted, and affected with marked twitchings. He was ordered to take mist. quiniæ c. tinct. nucis vomicæ miiij, *ter die*, and to be galvanized every other day.

He improved slightly, being able to raise his arms better. But there was no very decided benefit. He went out on June 4.

Case VIII.—A. C——, æt. 24, admitted under Dr. Wilks' care into the Clinical Ward, July 4, 1866. She said that she had never been very strong, and that since the death of her mother, five years before, she had had bad health. Her existing symptoms, however, dated from two years back, when she "entirely lost the use of her hands, and ultimately of her legs also." The fingers and toes became firmly flexed. On her admission they could not be extended, even by force, and they presented a well-marked "griffin's-claw" appearance. The muscles of the extremities were wasted to an extraordinary degree, the interossei of the hands having almost disappeared, so that the finger and thumb seemed to meet between the metacarpal bones. She had, in fact, the appearance of a mere skeleton covered by skin. She lay on her back in an utterly prostrate condition, and could only raise her hand a few inches from her bed. There was a distinct "blue line" on the gums. The water which she had been drinking was analysed by Dr. Stevenson, who found it to contain half a grain of lead in the gallon. She was, in the first instance, ordered to take iodide of potassium, and after three weeks faradisation was commenced. She began to improve gradually but surely; and on Oct. 2, when she was transferred into Lydia Ward, she could extend her fingers, and feed herself tolerably well with a knife and fork. The nutrition of the muscles had greatly improved. On Oct. 20, she tried to walk with a chair, but could manage only a few steps at a time. On Nov. 8, she walked across the ward. On Dec. 3, she menstruated for the first time during her illness. On Jan. 7, 1867, she went out, well.

This patient has since visited Guy's Hospital, and was then well nourished, healthy-looking, and able to walk as well as ever. Dr. Wilks speaks of the case as perhaps the most remarkable cure (or recovery) that has ever come under his observation.

It is much to be regretted that the reactions of the muscles under the current were not more carefully reported. The only note concerning them that we possess is one made by Mr. Edwards, on Nov. 30, to the effect that "the electro-motility of the arms to induced currents is good." We did not at that time possess at the hospital the means of testing the action of a *continuous* current.

To the last there were two opinions as to whether the disease was caused by lead, or of spontaneous origin.

It may also be thought by some that this case was an instance of the disease entitled by some French writers "*Marasme essentiel*."¹ This disease, however, seems generally to terminate fatally.

¹ "Trousseau's Clinical Medicine," translated with notes by Dr. Victor Bazire, New Sydenham Society, 1868, p. 297.

CASES IN WHICH BOTH CONTINUOUS AND INDUCED CURRENTS
WERE USED.¹

Case IX.—M. A. J—, a married woman, æt. 36, was admitted into the Clinical Ward, under my care, March 25, 1868. The notes of her case were taken, first by Mr. F. Taylor, and afterwards by Mr. R. Rendle, my clinical clerk, who devoted himself most assiduously to the carrying out of the treatment. She was affected with well-marked Craveilhier's paralysis of the upper limbs; both the atrophy and the paralysis being more marked on the right side than on the left. The "griffin's-claw" character of the fingers was very decided. None of the muscles of the upper limbs appeared to react normally to the induced current; but this was especially the case with the muscles of the right thumb, which hardly answered to it at all. She was ordered to take the mist. quiniæ *ter die*, and to have the continuous current applied to the back (after Remak's method) every day. On April 2d, she said she was a great deal better: she could hold a knife with the right hand, which she had previously been unable to do. On April 6th, I carefully tested the contractility of the muscles to the continuous current, and found that it was distinctly less than natural. I got extension of the wrists and fingers only with ninety cells on the right side, and with seventy-five cells on the left side. (These numbers cannot be compared with those obtained at other times, for the battery was enfeebled and needed to be recharged.) Distinct movements of the interossei were obtained only with ninety cells on the left side, not at all on the right side. Sensibility to the current was also much diminished. The current applied to the spine appeared to cause increased action of the muscles all over the body, many of which, however, were constantly affected with slight quivering movements, even when the patient was at rest.

There was a suspicion of a very slight dotted blue line on the lower gum; but although she took iodide of potassium for some days after her admission, the line did not increase.² Some of the affected muscles were tender and painful, and this would have been regarded by some as favourable to the idea that lead was the cause of the paralysis; but their reactions under the continued current were quite opposed to such a view.

From April 20th, besides the daily application of the continuous current to the spine, the right (or more feeble) arm and hand were daily faradised. At one time the only muscle of the right hand which reacted to the induced current was the abductor minimi digiti.

By the 5th of May she had regained considerable power, and could raise her

¹ In Case V., induced currents were used for a few weeks before the treatment by the continuous current was commenced. However, I do not include that case in the present group, in which I place those only that were treated by the two kinds of current simultaneously.

² I think I have twice seen a lead-line become more marked, while a patient has been taking iodide of potassium in the hospital wards. The observation was an original one of my own; but Dr. Hall has mentioned in the St. George's Hospital Reports a still more striking instance of the same fact, noticed by my friend Dr. Frank Smith, at Sheffield. The increase of the blue line under the use of iodide of potassium is evidently due to the same kind of action as the appearance of lead in the urine of patients, while taking this remedy.

right hand to the left shoulder. On the 15th she could carry a chair, whereas on admission she had been unable to lift a teacup. The hands also were less wasted, and their muscles somewhat less feeble. She was galvanized regularly by my clinical clerk, Mr. R. Rendle, who now generally used about fifty or forty-five cells; she could not bear a larger number.

On the 20th of May she menstruated for the first time since her confinement. The use of the continuous current was therefore left off for a few days. It had before been omitted on Sundays. She said that whenever this occurred she always felt more languid than when the current had been applied.

On the 28th it is noted that although the muscles of the left hand were more under voluntary control than those of the right, they reacted less powerfully to the induced current. This could hardly be ascribed to anything but the persevering use of faradisation to the right hand; for the induced currents had never been employed to the left hand, except for the purpose of clinical observations. From this time *both* hands were faradised. On the 4th of June all the muscles of each hand, except those of the thumbs, reacted to the induced current. The left hand now actually appeared to be the more wasted of the two. On the 11th, each abductor pollicis reacted; and on the 20th all the muscles, except those of the left thumb. On the 27th even these reacted.

For some days before the 26th she had been menstruating, but on that day the flow ceased. On the following day the continuous current was resumed, having been omitted while she was unwell. It brought back the flow to a slight extent. About this time she stated that the muscles between her toes had wasted, and that her right leg dragged somewhat, and required undue exertion to move it. I examined the limb, but was unable to verify these statements.

On Aug. 1, it is noted that "if the *faradisation* is once omitted, she is unable to lift her cup to her mouth. If the *continuous current* is omitted from any cause, she notices no difference. Both are used daily; she improves slowly."

On the 24th, "the continuous current has not been able to be used since the 12th, as she has been menstruating for ten days past. The faradisation has been continued daily. There has been no improvement lately. She cannot lift her cup now, although she could on the 22d. She goes to-day into the country for a change."

Case X. (from the report of Mr. Coomber).—S. D.—, æt. 28, came as an out-patient under my care, and was afterwards admitted into Dr. Wilks' Ward on July 29, 1868. For the last eighteen months her right hand had been gradually wasting, with loss of power, and coldness. She was unable to spread her fingers apart, and had well-marked progressive muscular atrophy. The arm was also affected.

This patient has been treated with the continuous current after Remak's method, and the affected parts have also been faradised. Up to the present time (Nov. 13), no decided improvement has taken place. On the contrary, the left hand, which was healthy, has gradually been losing power.

In several of the cases above recorded, the result was, I think, satisfactory. It will certainly appear so to those whose knowledge of the disease is based on the account of it given in Trousseau's Clinical Medicine; for he believed treatment to be powerless against this complaint; and remarks that "if localized faradisation has in some cases been able to arrest its develop-

ment, the disease has made further progress, after a more or less prolonged intermission."

Perhaps the most favourable of all my cases is No. I. It appeared to be a typical example of uncomplicated progressive muscular atrophy, and perfect recovery took place under the use of the continuous current. I can bring forward no parallel instance of a case cured by the interrupted current. But then the disease had but recently commenced, and although quite well marked, was in an early stage. A comparison of Cases II, III, and IV, with Cases VI, and VII, will show that cases of long-standing "Cruveilhier's paralysis" may fail to be benefited to any extent, whether by faradisation, or by the use of the continuous current.

In Cases V. and VII. the results of treatment were very satisfactory. Each patient, when admitted into the hospital, was a helpless cripple; each entirely recovered. The one was treated by the continuous current, the other by faradisation. But I think that it is only with some caution that either of these cases should be used as material for building up a statement as to the influence of treatment on progressive muscular atrophy. In Case V. the affection of the hands was well marked, and the appearance quite characteristic; but the trunk and lower limbs presented an affection altogether exceptional; and when the case is looked at as a whole, I know not where to find its parallel. In Case VII. there is a doubt, not only as to whether the disease was produced by lead, but also as to whether it did not rather resemble the "*Marasme essentiel*" of French writers. Unfortunately it is now too late to inquire what was the action of electricity on the atrophied muscles, which, if the case were one of the affection just mentioned, should have reacted normally to the current. It might have been thought advisable to have omitted a case so doubtful; but I have preferred to include it in my paper, as it was one which excited much interest at the time.

Case IX. is valuable as showing that, even while the continuous current is being used after Remak's method, it may be of benefit to have the wasted muscles themselves faradised. This fact may, I think, be regarded as almost established, for only the *right* hand (the one most feeble) was faradised, and this

regained its power, until it equalled the left hand. The only possible objection that I see to the conclusion just stated is that since progressive muscular atrophy generally affects the left hand later than the right, and tends after a time to become arrested in the parts which it attacks, it may have been so arrested in the right hand during the time that the patient was under treatment. If so, it would be only what we should expect, that the application of the continuous current to the spine should produce *unequal effects* in the two limbs, doing less good to that which the disease was advancing, than to that in which it was quiescent.

This matter is not only one of great practical importance, but of some uncertainty. For Remak laid it down as a dogma that faradisation of the muscles is injurious in cases such as those recorded in this paper.

The only point deducible from Case X. appears to be that the combined use of the continuous current and of faradisation may fail to benefit some cases of progressive muscular atrophy. At the same time I ought to state that in this case the galvanism has been applied not by the clinical clerks themselves, but by the nurse in the electrifying-room. It is therefore admissible to entertain a doubt whether the treatment may not have been less accurately and less skilfully carried out, than it was in the more successful cases; in attending to which my clinical clerks, Mr. Bransford Edwards and Mr. Richard Rendle, spared neither time nor trouble.

ON MURIATE OF AMMONIA AS A REMEDY FOR SOME NERVOUS DISORDERS.

BY DR. ANSTIE.

MURIATE of ammonia is one of those commonplace and unattractive substances which we, in this country, are little apt to credit with extensive remedial properties in disease. It is not easily soluble, and its saline taste renders it unpleasant to many patients. It is, nevertheless, remarkable that this drug should have been regarded, as it certainly is by many, as more or less *inert* in a physiological and therapeutic point of view, for a very little experience of its use would suffice to convince the practitioner that this idea is exactly the reverse of the truth. Few agents in the whole Pharmacopœia have more decided and reliable therapeutic properties. The apathy with which its pretensions are treated in England, contrasts singularly with the wide and varied uses to which it has been applied by German physicians, whose faith in its powers, to say the truth, seems to me to run into the other extreme of excess. The experiments of Mitscherlich upon rabbits possibly misled many, by leading them to suppose that the remarkable effects produced upon the mucous membranes of the alimentary canal by considerable—in fact poisonous—doses, must necessarily be imitated, on a smaller scale, by the action of moderate quantities. The muriate seems, indeed, to have acquired the reputation in Germany of a universal stimulant of the various secretions. In Schroff's excellent *Lehrbuch der Pharmacologie* we find it recommended as a stimulant of bronchial secretion, and an expectorant; as a remedy for blenorrhœa, with thickening and swelling of the urethral mucous membrane; for similar affections of the rectum; for hypertrophy of the prostate; for jaundice dependent on portal stasis, or on

tumefaction of the mucous membrane of the gall-ducts; in the gastric complications of certain intermittent fevers. It has likewise been credited with solvent powers in scrofulous enlargements of the liver, of the glandular system, and of the ovaries and uterus; and has been recommended as an emmenagogue.

The experiments of Böcker, also, which appeared to demonstrate the power of muriate of ammonia to increase the nitrogenous elements, and the fire-proof salts of the urine, have led to a good deal of theoretic belief in its capability to materially modify the bodily nutrition by this sort of eliminant action.

It is surprising that in view of the well-known action of liquid ammonia and carbonate of ammonia upon nervous energy, and in view of the fact that the muriate itself, in large doses, produces fatal convulsions, the latter should not have been more systematically investigated from the side of its effects on the nervous centres and the sympathetic system. For, setting aside, at present, the far from improbable hypothesis that the mucous and glandular phenomena are but secondary to this nervous action, it is certainly the fact that a much wider field of remedial efficacy is afforded by the employment of the muriate, in moderate doses, as a neurotic agent. I purpose to sum up the results of a considerable clinical experience of its employment for the relief (1) of various kinds of pain; and (2) of certain cases of suspended secretion dependent on nervous exhaustion.

1. The anodyne action of muriate of ammonia has not been so neglected as it is for want of empirical observations, by various authors, sufficiently striking to have arrested attention. The practical unfruitfulness of these observations must be laid chiefly to the blame of the mischievous metaphysical conception of pain as a mode of *heightened vital energy*, which rendered it difficult for the popular intelligence to understand the applicability of ammonia—usually considered a stimulant *par excellence*—as an anodyne. So widely prevalent, even now, is this fundamental misconception, that nothing but stubborn facts in large array can break it down. Fortunately, such facts can be produced in any number, and, in the case of muriate of ammonia, they have presented themselves to me in overwhelming force.

A. Foremost in the list of painful affections for which the muriate is useful are the group of disorders now classed under

the term Myalgia, which was invented by Dr. Inman. The outpatient clinic of a hospital presents an excellent field for the study of these affections, and at Westminster they present themselves in very large numbers. The general type is that of aching pains felt in muscles which are habitually overworked in proportion to their nutrition; such pains are naturally commonest in laborious and ill-fed persons. The most exquisite examples are, perhaps, seen in shoemakers and sempstresses, who (often with insufficient food) work many hours a day in cramped positions which keep certain muscles of the trunk in a permanently contracted state. Myalgia of the intercostals, and of the recti abdominales, frequently attacks these persons with great severity. Theoretically, of course, the one all-paramount indication of treatment should be *rest* to the overworn muscles. Practically, this is often impossible, and some other remedy has to be found. I have tried all manner of remedies to this end, and have come to the conclusion that nothing in the whole list of them comes near to muriate of ammonia in efficiency. Several authors have spoken favourably of its action in myalgia. I give it in doses varying from ten to twenty grains, and can say that not even quinine in ague is a more reliable agent than the muriate in myalgia. Of course it quite fails in a certain percentage of cases; and of course, in a still larger percentage, the hostile influences balk a perfect cure. But the total or partial failure of quinine in intermittents is quite as frequent an occurrence.

B. The neuralgias proper require a special classification in relation to their amenability to the muriate. First on the list, by very much, stand *migraine* (or one-sided headache, ending, if it lasts long enough, in vomiting) and so-called *clavus hystericus*. In estimating the value of any remedy for neuralgias like migraine and clavus, it is necessary to take into account the history of those affections and the place they occupy in pathology. The unfortunate term "sick-headache" popularly applied to the one, and the equally luckless adjective "hysterical" employed in speaking of the other, for a long time fatally confused the subject. They brought about this result, namely, that the pain in the head, in each case, was tacitly considered as merely secondary to some other affection—of the

stomach in the one case, of the sexual organs in the other—instead of being recognised as what they certainly are, distinct and primary neuralgias of the fifth cranial nerve, of a kind which belongs *especially to the period of bodily development*. Hence migraine and clavus have, time out of mind, been made the occasion for every description of meddlesome and useless, and often actively mischievous, medication, directed to the removal of a “biliousness,” or an imaginary “hysteria.” The distinct recognition of these kinds of headache, as the *facial neuralgias of the young*, clears our way towards a frankly neurotic treatment of them; and under these circumstances, in accordance with the principles now coming into general adoption, the following lines of treatment lie before us. There is the improvement of nutrition of the nervous system by various means; an object of special importance in neuralgias which are connected with the period of bodily growth. There is the employment of counter-irritation; a matter which is of less importance in this case than in that of other neuralgias: and finally, there is the employment of a variety of internal remedies which produce visibly direct and rapid effects upon the nervous system.

Among the latter class of agents there is every variety of applicability to the treatment of different neuralgias. Migraine and clavus rank decidedly among the milder varieties of neuralgic pain; that is to say, they are not in themselves either so intolerable or incurable as many others. They are distressing enough while they last, but the attacks usually tend to spontaneous termination, or at least great remission by the occurrence of sleep. Of agents which directly affect the nervous system, therefore, it would seem probable that the mildly stimulant class, which tend simply to restore interrupted function to its natural level, would be most suitable to cut short the attacks of such a neuralgia in its commencing stage. Salts of ammonia naturally suggest themselves, as highly *diffusible* stimulants, as likely to effect this purpose. After very numerous trials I have come to the conclusion, that though the preparations of ammonia are generally available, the muriate, in doses of ten to twenty grains, is very much the best; and in fact, if given early enough, seldom fails to cut short or greatly mitigate an attack. I need hardly say that among the out-

patients of a hospital numerous hard-worked and delicate young women present themselves, who suffer from one or other of the forms of headache now referred to; and the efficacy of the muriate of ammonia treatment in my practice at Westminster Hospital has now become a fact of which the clinical clerks and students are well aware.

With less remarkable frequency, but still pretty often, I have observed the good effects of muriate of ammonia in *intercostal* neuralgia. I am not now speaking of the very severe and intractable form of that complaint which often attends, and in some cases continues long after, the eruption of herpes zoster; but of the much commoner form which is apt to occur in suckling women, and in some phthisical patients. In suckling women a very painful neuralgia often occurs, the principal site of which is a point or points in one or more of the intercostal spaces, an inch or two below the left nipple. In phthisical patients intercostal neuralgia is also rather common, but is not so limited as to the place of its maximum intensity; for it may occur on either side, and in any of the intercostal spaces. In both these varieties of intercostal neuralgia the use of muriate of ammonia is very frequently of striking benefit, pain being relieved in half an hour. It must be confessed, however, that the remedy is not successful in so large a proportion of the neuralgic, as of the myalgic affections of the chest-wall.

Neuralgias of the lumbo-abdominal nerves are occasionally benefited by the muriate, but only temporarily; in marked contrast with the prompt and permanent relief which this remedy so frequently affords to the myalgic affections of the lumbar and abdominal regions.

In sciatica there is a broad line to be drawn between the cases that may, and cases that may not, be benefited by muriate of ammonia. This medicine is generally applicable, as an anodyne stimulant, to those milder varieties of sciatica which occur in young persons whose health has not been profoundly shattered, and especially in cases that are recent. In such affections the influence of the drug, though nothing like so important and essential a feature in the case as it is in that of myalgia and of many cases of migraine, is decidedly good. But in cases of long standing, and especially in those cruel and

inveterate types of the disease which commence in the later periods of life, and are coincident with a progressive degeneration of the arteries and of the tissues generally, the muriate of ammonia is ineffective. Nor have I found it of any value in the truly *rheumatic* varieties of sciatica, although some authors have especially recommended it in these cases. I have elsewhere stated¹ that in truly rheumatic cases I believe the mischief to be of an inflammatory character, and to have its origin and essential seat in the sheath and surroundings of the nerve, which become thickened, and, as it were, hypertrophied. Limiting the title 'rheumatic' strictly (and as I believe properly) to such cases, I do not find that the muriate of ammonia has any genuinely beneficial effect upon them; while, on the other hand, the iodide of potassium does appear to be singularly useful: and, indeed, I believe it is only in this kind of neuralgia that the latter remedy can be at all depended upon to produce good results.

Of the effects of muriate of ammonia in the deeper-seated neuralgias—those which attack internal viscera—I can only speak with cautious reserve, seeing that the diagnosis of neuralgia in these situations is always surrounded with difficulty. In neuralgias of the *heart*, the best-marked members of the group, I confess that I have never been inclined to rely upon them, and consequently have made no experiments which are worthy of being recorded; for the imminence of the danger connected with this kind of affection has always predisposed me to make use of remedies as to which there is strong evidence that they exert a powerful influence over the nervous apparatus of the heart. Sulphuric ether in the emergency of the actual paroxysms, and arsenic and strychnia as prophylactics, have appeared more worthy of persistent trial in these very serious diseases. Adding opium to the list, I am inclined to say much the same (though here the element of danger to life has not to be considered) in the case of *gastralgia*. In ovarian neuralgia, however, a sufficiently common and a very distressing malady, I have once or twice seen full scruple doses of the muriate produce remarkable relief; though here, again, the action of ether, and still better of morphia, or of atropine subcutaneously

¹ Article on "Neuralgia" in "Reynolds's System of Medicine," vol. ii.

injected, is usually found to be a far more certain and direct means of quieting the pain. There is one variety of visceral neuralgia, however, which, though much less common than the kinds now mentioned, indisputably exists, and is, moreover, very troublesome and rebellious to ordinary anti-neuralgic treatment—viz. *hepatic*. No doubt there has been a great deal of vague and incorrect writing about hepatic neuralgia, the result of inexact diagnosis ; but there are perfectly typical cases of the disease. The patient, with or without any obvious bilious disturbance, suffers from severe pain of the true neuralgic type, deep in the region of the liver, with intermissions of perfect ease ; there are no inflammatory symptoms, and on examination we discover no sign of organic alteration. Sometimes the pain is limited to the immediate region of the liver ; in other cases it extends towards the shoulder, as in many other liver affections. According to my experience nothing is more obstinate than such a case as this. Quinine and arsenic are either ill borne by the stomach, or, if they create no disturbance, at least effect little or no relief. But here the muriate of ammonia, in ten or fifteen grain doses, really acts “like a charm,” cutting short the attack promptly, and also seems to dissipate the tendency to neuralgia.

The mention of muriate of ammonia as a remedy for hepatic neuralgia conducts us very naturally to the consideration of another characteristic action of the drug, which is really of very great value. Although I cannot, from any experience of my own, confirm the statements of various continental authors as to the effects of the muriate upon secretion generally, with regard to the secretion of *bile*, when suppressed under certain circumstances, I am convinced that this medicine is the most powerful of all functional restoratives which I have met with. There is a very familiar class of cases of acute jaundice, the origin of which can be distinctly traced to strong *nervous perturbation*. There are certain persons, of markedly neurotic tendencies, who, throughout their lives, are liable to suffer from severe nervous disturbance of one kind or another, when they receive any considerable shock, either mental or bodily. Many of these subjects are liable to headache of a neuralgic type ; a majority, perhaps, are women, with either hysterical or choreic tendencies.

A severe nervous shock, such as that of fright, or more surely still the persistent influence of a deep and growing anxiety, such as that which preys on the mind of an unfortunate girl of respectable connexions, who has been seduced and deserted, and finds herself pregnant,—such powerfully disturbing emotional influences as these have frequently been known to suppress the excretory function of the liver in a very complete and dangerous manner, dangerous not merely from the toxic effect upon the blood, but from the intensely depressed condition of the nervous energy generally. The whole class of so-called cholagogue aperients are much more than merely inert for good in such cases, they are most actively harmful; and, by consent of all good authorities, a reviving and stimulant treatment is allowed to offer the only chance of good from direct medication. Any ammoniacal preparation will be useful, and I have seen good effects produced by the bicarbonate, by sal-volatile, and also by acetate of ammonia, in doses smaller than those required to produce diaphoresis. But the muriate is by far the most effective preparation; and, indeed, I have seen several instances in which two or three doses of twenty grains, given at intervals of four hours, have produced a decided change, and a marked recommencement of biliary excretion.

A much more doubtful matter, as to which, nevertheless, I am not prepared even to lean with any strength towards the negative, is the reputed *emmenagogue* influence of muriate of ammonia. There are probably very few physicians educated in the ideas of recent therapeutics, who believe in anything like *specific* emmenagogues—that is to say, in remedies which, in all circumstances, exert a more or less powerful and direct influence in the direction of provoking the menstrual flow. And although there are probably as few practical physicians who do not believe that there are several medicines which, given under exactly the proper and favourable circumstances, do appreciably assist the function in question, yet it cannot be disputed that there is always immense difficulty in deciding the exact degree in which this action has been curbed in any particular instance. It is abundantly clear that such remedies as iron only act by improving the quality of the blood and the general tone of the

nervous system, and it is extremely doubtful if such medicines as aloes, either alone or in combination with iron, have any more than this effect, with perhaps the added advantage, in particular cases, of keeping the intestines unloaded, and thus removing a source of frequent mechanical pressure. Of ergot of rye, and one or two remedies physiologically allied to it, it seems as if we were justified in speaking rather more strongly; and it remains doubtful, as far as my experience goes, whether muriate of ammonia may not ultimately prove also to possess a real influence upon the pelvic sympathetic nerves, which approximates its effects to those of the former drug in this particular direction. Given in ten-grain doses thrice daily, in cases of amenorrhœa marked rather by general feebleness than by anything like anæmia, it has occasionally seemed to me to conduce directly and considerably towards the cure. But of this, as of all other emmenagogues, it is pre-eminently true that they are worth absolutely nothing unless used precisely at the fit occasion.

In concluding this paper we may remark that there is not one fact mentioned in it that does not point to the nervous system as the *locus in quo* of the therapeutic action of the muriate of ammonia. The relief it affords in myalgia, or in suppressed secretion, is surely as directly nervous as its anodyne effect in pure nerve-pain. It appears, in fact, when given in therapeutic doses, to be a pure tonic stimulant to sensitive nerves, raising them to a level of tense vitality *too high* for the explosive perturbations which, when carried to the brain, are translated as *pain*, and to the vaso-motor system, directly inciting to a superior tone of the systemic vessels, which puts an end to that exaggerated passive congestion of viscera which is known to be fatal to the healthy performance of the function of secretion.

Reviews.

On Asthma: its Pathology and Treatment. By HENRY HYDE SALTER, M.D., F.R.S. Second Edition. London: Churchill, 1868. 8vo. pp. 464.

THIS second edition of Dr. Hyde Salter's valuable treatise is, of course, abundantly sure of a welcome. Whatever may be said about the theories which the author propounds as to the pathology of the disorder, it is at least well recognised that he can describe its symptoms excellently well; both this faculty, and also his copious familiarity with remedies, and his masterly confidence in speaking of their respective values, being gained in part from his own sad experience as a sufferer from the disease. We may as well say at once that we have never been able to subscribe to Dr. Salter's favourite theory of spasmodic contraction of the muscular coats of the bronchi during an asthmatic paroxysm, since we read the very careful observations of German and French authors, which appear to prove very distinctly that various conditions (sometimes spasm and sometimes paralysis) are really answerable to that asthmatic dyspnoea which is fairly enough called "spasmodic." At any rate Dr. Salter well makes out the essentially neurotic character of asthma, and holds up that picture to us throughout: his therapeutics are also most distinctly based upon this view. The latter subject is treated with a meritorious care and fulness which is uncommon, and most instructive and refreshing when we meet with it. Every one knows how well and clearly Dr. Salter writes: our readers will, therefore, justly imagine that they have a treat before them, in studying the 137 pages which he specially devotes to the subject of treatment. He takes the common-sense view, not an ambitious one, of the treatment of asthma, that one may contentedly resign the attempt at radical cure of the asthmatic *tendency*, if we can only find out *the* remedy which, in the particular case, will always cut short a paroxysm; for, say she, the only danger of this most distressing disorder is that which is caused by the damage inflicted on the thoracic viscera whenever a fit is allowed to last for any considerable time. Accordingly, the object which to Dr. Salter seems all-important is the discovery in each case of the ideal medicine for stopping the paroxysm; and for this he is willing to run very

considerable risks. Perhaps it may be more useful, instead of recording our author's favourable opinion of remedies which are, nowadays, familiar to everybody, to mention some of his more peculiar therapeutical preferences. Putting aside, in this way, the burning of nitre, the use of stramonium, coffee, and one or two other remedies which are immemorially old, we may mention particularly the creed which he holds with regard to the class of strictly and unmitigatedly *depressing* remedies. Of these tobacco, used in the way which he prefers, is assuredly the very type: our readers do not need to be reminded of the horrible sensation which they themselves experienced on smoking their first cigar or pipe, if they have ever tried smoking at all. Dr. Salter insists that, although the moderate every-day use of tobacco, in the manner in which multitudes of habitual smokers employ it, is really useful, and in some way diminishes the frequency and violence of the fits, the model way of employing this agent, which he speaks of most highly, is something quite different. In fact he advocates the use of tobacco in decidedly poisonous narcotic doses: thus he recommends that a patient quite unaccustomed to smoking should, at the commencement of a paroxysm, begin to smoke strong tobacco in a pipe till he feels the peculiar deadly nausea which is so characteristic and painful a consequence of such an indulgence. We confess that such a remedy appears to us of most doubtful expediency. That tobacco, smoked to a nauseating degree, will rapidly relax the severity of an asthmatic paroxysm, there can be no doubt; but the treatment appears to us more dangerous than Dr. Salter seems to think, though even he allows that the symptoms are apt to be inconveniently severe. When it is remembered that this degree of the poisonous action of tobacco necessarily involves an extreme degree of depression of the heart's action, we may well hesitate before seriously recommending its induction. Doubtless it might act well enough in twenty cases, but the twenty-first patient might be (as we believe is not at all unfrequently the case, especially where the asthma is an old-standing complaint) an individual with an ill-nourished, or even distinctly fatty, heart; and it is impossible to feel any confidence that such a heart might not be brought to a final stop under the formidably depressing influence of the poison.

In fact, we feel strongly inclined altogether to protest against that class of remedies which Dr. Salter distinctly recommends on account of their directly depressing effect. We cannot believe that this profoundly debilitating influence is necessary: nor can we understand how Dr. Salter reconciles the laudation of this kind of remedies with his strong encomiums—not at all too strong, however—on the rapidly beneficial action of powerful

stimulants, such as coffee and alcohol. It is true that he puts forward a plausible theory to the effect that agents of the latter sort do, as it were, rouse up the higher centres of *conscious* life, and thus divert nervous force which would otherwise be employed in disastrous explosions of bronchial spasm. But we know of no justification, in accurate investigations of the physiological action of the stimulants now named, for this theory of their action. Neither coffee nor alcohol act in so exclusive and limited a manner. Their stimulant effects are at least as clearly manifested in the region of the sympathetic and the pneumogastric as in that of the cerebral hemispheres. We do not for a moment dispute Dr. Salter's statement that, as a matter of fact, the asthmatic paroxysm does by preference attack its victims either during sleep, or at any rate during a condition of depression of the nervous forces: only we object, on the strength of our own observations, not made in one or two, but in a great many instances, to the supposition that the tendency to spasm of the respiratory apparatus is merely due to the suppression of the power of the centres of consciousness and intellect. Two misconceptions seem to us to lie at the foundation of this belief: one, the assumption that spasm implies excess of nervous energy, a proposition which seems to us to be controverted by a thousand facts of daily clinical experience; the other, the hypothesis of spasm of the bronchi as the peculiar and essential cause of the asthmatic paroxysm—an idea which has been surrendered by all the best continental authorities, on grounds which appear to us to be unanswerable. It is at least competent for pathologists to affirm the probability that any muscular spasm is more probably a manifestation of *lowered* nerve force: and assuredly, in presence of the researches of Duchenne, Bamberger, and others, we may be permitted to assert, firstly, that the balance of evidence is greatly in favour of the belief that the affected muscles are not those of the bronchi, but chiefly the diaphragm, and in less degree the other respiratory muscles; and secondly, that the condition is sometimes plainly not a spasmodic, but a paralytic, condition of muscles. It is astonishing how long it takes to destroy a scientific idol, such as the belief that spasm, and paralysis are necessarily *opposite* conditions, although every day clinical experience of disease is constantly showing that they are only different phases of an essentially identical debility of controlling nervous force.

In dealing with the subject of the influence of chloroform upon the asthmatic paroxysms, Dr. Salter mentions some very curious and valuable facts. He states, namely, that whereas at first a very small degree of the chloroform influence is sufficient (when the remedy acts favourably at all) to quiet the paroxysm, and allow the patient to sink into a quiet slumber, the natural

tendency is to go on increasing the quantity, and that after a time a similar kind of nervous derangement is observed to that produced by chronic excess with alcohol—namely, a marked insomnia, and a tremor of the limbs exactly like that which distresses the subject of chronic alcoholism. The advent of such symptoms puts an end to the possibility of using chloroform for arresting the paroxysms, which it may previously have effected in a most satisfactory way. It is a new and strange thing to be told of this cumulative chronic effect of chloroform upon the system; and, as coming from so careful an observer as Dr. Salter, is very valuable. It is quite opposed to what we know of the difficulty with which chloroform is introduced into the blood at all, the rapidity with which it is eliminated by the lungs, and the experience of multitudes who have been driven by constantly recurring pains, or convulsive affections, to the daily use of chloroform. Where care has been taken to employ an inhaler which does not waste the chloroform, patients will go on taking exactly the same dose day after day and month after month, always procuring just the effect which they require: and we must say that unless we knew that Dr. Salter's patient had economized the anæsthetic in this way, we must remain somewhat uncertain as to the physiological lesson which his case teaches. There is one fact, however, that does seem to be beyond cavil, and that is an apparent storing up of chloroform in the blood, in the case which he records: and this is, after all, the most difficult thing to explain, for all careful recent experiment shows that chloroform disappears from the system with the greatest possible quickness, and apparently by a physical necessity, owing to its great insolubility in the blood serum. Altogether it seems probable that this kind of case, though most interesting, is very rare. It is instructive to observe that Dr. Salter finds the effect of the repeated narcotism is at length to increase the tendency to the paroxysms, a fact which offers a forcible analogy with what is often observed in the case of opium, and of Indian hemp, in persons who for long periods have abused these substances to extreme excess. We cannot help thinking that, in applying any remedy of this class to the treatment of a periodically recurring spasmodic affection, the most strenuous efforts should be made to keep down the doses of the drug employed to that lower level at which only stimulant and tonic effects are produced; and in speaking on this point, we would comment on Dr. Salter's very decided objection to the use of *opium* for asthma. Opium used in large doses, and given by the stomach, does no doubt deserve all the unfavourable opinion which our author passes upon it; but we believe that very different, and sometimes most favourable, results may be produced by the subcutaneous use of very small quantities

of morphia. We may say the same thing more emphatically about *belladonna*: the drug in full gastric doses is in our experience very rarely of much use, even for the moment. But subcutaneous injection of atropine in minute doses has produced, both in our own hands and in those of others, surprisingly beneficial effects.

Dr. Salter discourses most instructively on a point which deserves the serious consideration of therapeutics, the strange *caprice* of asthma, in submitting in one case to the influence of one remedy, and in another to something widely different; nay more, in sometimes changing its therapeutic sensibilities more than once in the course of the same case. It is a topic which we should much like to hear discussed by a committee of veteran practitioners of large experience; we might in this way get the necessary basis of fact for some most important and novel discoveries of therapeutic laws.

Altogether, the volume is a delightful one to read, and most practically useful. We cannot agree with some of its pathological principles, nor with the therapeutical consequences which the author deduces from them; but we nevertheless find in it a great mass of material for thought, and for guidance in practice.

Injuries and Diseases of the Jaws. The Jacksonian Prize Essay of the Royal College of Surgeons of England, 1867. By CHRISTOPHER HEATH, F.R.C.S., Assistant Surgeon to University College Hospital, and Teacher of Operative Surgery in University College. With numerous wood-engravings. London: J. Churchill, 1868. Pp. 416.

THE name of the author, and the circumstances of the origin of this work, are guarantees of its practical utility and scientific value. The book supplies a great want; for although much has, of course, been written upon the subject, the information has been in so scattered a form that reference to it has always been laborious and unsatisfactory. The various forms of fracture, gun-shot injuries, and dislocations of the jaws, are first considered; then inflammation, abscess, periostitis, and necrosis, hyperostosis, and cystic diseases. A large amount of attention is given to the various tumours with which the jaws are liable to be affected, with the diagnosis and treatment of these conditions. Both the rare and common diseases are fully described, the accounts evidencing most painstaking reference to all published descriptions, the sources of which are faithfully acknowledged, and including much valuable information which the author's large experience upon the subject enables him to give. Nature has been so bountiful in her vascular supply to the region of the jaws that surgical interference usually com-

mands great success even in cases of the most appalling description, and the happy results of surgical skill are well shown in the clear and well-drawn illustrations with which the book abounds. Even in the lesser ailments which affect these parts careful and good surgery is always to be desired, for although the results, as affecting the utility of these bones, may not be of any vital importance, yet in a part of the body so exposed to observation the avoidance of any unnecessary eyesore is most desirable. We are glad, therefore, to see Mr. Heath entering minutely into the subject of inflammation and abscess, the result of diseased teeth, and giving ample directions for the management of these common and troublesome affections. The book is most pleasantly written in excellent English, and—what is always a boon—the reader is not wearied by elaborate accounts of the anatomy of parts with which he may reasonably be supposed to be acquainted by previous study. The style in which the publication is executed leaves nothing to be desired.

Reviews of the following works are in hand, but, owing to unusual pressure on our space, must “stand over” till next Number:—*A Manual of Diseases of the Eye*. By C. MACNAMARA. Churchill.—*The Pharmacopœia of India*. 1868. Allen.—*Lectures on Surgery*. By JAMES SPENCE, F.R.S.E. Black.—*The Parasitic Affections of the Skin*. By Dr. M'CALL ANDERSON. Churchill.—*A Handbook of Uterine Therapeutics*. By EDWARD JOHN TILT, M.D. Churchill.—*Der interoculare Druck und die Innervations-Verhältnisse der Iris*. STELLWAG VON CARION.—*Manual of Skin Diseases*. By BALMANNO SQUIRE, M.B. Churchill.—*On Bright's Diseases of the Kidneys*. By T. GRAINGER STEWART, M.D. Black.—*Pathologie u Therapie der Venerischen Krankheiten*. Dr. ALBERT REDER.

Clinic of the Month.

Employment of Acupuncture as a Counter-irritant.—Dr. John G. M'Kendrick sends us the following account of the method of acupuncture at present practised in various parts of Germany, under the name of Baunscheidtismus; so named from Baunscheidt, its inventor. The instrument employed consists of a heavy disc about half an inch in diameter, having inserted in it twenty-five sharp needles, each about 9-16ths of an inch in length. To this disc a strong wire spiral spring ($5\frac{1}{2}$ inches in length) is attached, and the other extremity of the spring is inserted into an elongated spindle-shaped handle. The disc, spring, and part of the handle are enclosed in a cylinder, open at both ends, and wide enough at one end to allow the disc bearing the needles to move freely in and out. The handle passes through the other and narrower end of the cylinder. A lid is screwed on the needle-end of the cylinder to protect the needles when the instrument is not in use, and the cylinder can be divided about an inch from its wide end by unscrewing, so as to allow the needles to be properly cleaned. The method of using the instrument is as follows:—Place the open end of the cylinder, concealing the needle-points, on the part where counter-irritation is desired, and hold it firmly; with the other hand pull up the handle at the other end of the instrument, let it go smartly, and the needles, by the recoil of the spring, will bury their points in the skin to a depth proportionate to the amount of tension put upon the spring by pulling up the handle. As the needles are very fine, the punctures give little pain, and there is almost no bleeding. After the puncturing has been done to the extent required, the part is rubbed with any irritant fluid, such as a few drops of croton oil dissolved in half an ounce of oil of cajuput (weak linimentum olei crotonis, B.P.). The effect is singular. In about half an hour, or perhaps an hour, a small vesicle (like an early vesicle in common eczema, but much smaller, and surrounded by a narrow red zone), makes its appearance at each needle-puncture, but not on the skin between the punctures. The size of this vesicle corresponds with the depth of the puncture. Soon the vesicle becomes a pustule, and then gradually dies away, disappearing in two or three days. Dr. M'Kendrick has found this kind of counter-irritation useful

in localized rheumatism, especially sciatica and lumbago. It is also useful in facial neuralgia. In these cases he has seen it speedily relieve pain. He has also used it with good results in cases of chronic disease of joints which required counter-irritation. Its use applies to all those cases where the application of Sir Dominick Corrigan's thermo-cautery is useful. Having often observed, in phthisical cases, that after the application twice or thrice of the linimentum olei crotonis (B.P.) no eruption could be produced by repeated subsequent applications, he got over this therapeutical difficulty by first acupuncturing the chest, and then applying a weak croton oil liniment. By doing this he can secure repeated crops of vesicles, and prolong the counter-irritation as long as desirable. The irritant action being so completely under control, it can be accurately applied along the course of a nerve. The patients have not complained, but have preferred it to such counter-irritants as mustard and cantharides plasters. Nor is it so painful as the usual method of employing acupuncture, by working with a boring motion large needles deeply into the tissues.

Suppurating Bubo treated by Carbolic Putty.—Assistant-Surgeon Wilmot H. T. Power (13th Light Infantry) sends us the following record of sixteen cases of bubo in the inguinal region, and of some other cases of interest.

*"Suppurating Bubos of Inguinal Regions:—*Case 1, healed in 15 days;¹ 2, in 16 days; 3, in 13 days; 4, failed; 5, healed in 4 days; 6, in 3 days; 7, in 9 days; 8, in 3 days; 9, in 4 days; 10, in 8 days; 11, in 4 days; 12, in 6 days; 13, in 6 days; 14, in 4 days; 15, in 4 days; 16, in 11 days.

"Case of abscess on inner side of edge of left tibia, beneath periosteum, healed in 4 days.

"Case of Compound Fracture of Left Foot from a truck laden with blocks of stone passing over the foot of a boy of fourteen years of age; a deep ragged cut extending from centre of dorsum of foot to centre of sole of foot. The wound was well bathed with the carbolic acid, dissolved in linseed oil, and the putty applied afterwards; putty changed every day, no pus formed, little or no pain. On the tenth day the putty was stopped, and simple dressing applied, a superficial granulating surface being then left; and on the twenty-second day this was quite healed, and the boy could limp about. He was kept in bed only two days. Three months after I heard of him as being quite well, and following his usual outdoor occupations. The four first cases were failures, owing to my not following certain precautions, which I learned by the experience of these cases. Taking

¹ "By 'healed' in so many days I mean the number of days during which the 'putty' was applied after opening the abscesses by the knife, and at the expiration of which the patient was fit to be discharged from hospital."

the remaining twelve cases of bubo, we have an average duration of 5 days for each case. The method adopted was such as given by Mr. Lister, but I used sheet lead on which to spread the putty—the *pus must be thoroughly evacuated*: a spica bandage is put over the putty, which is changed once in every twenty-four hours, and the patient allowed to walk about. I think the duration of these cases, together with the non-confinement to bed, worthy of the attention of the profession. At the same time, the *slightest carelessness* in treating any cases by this method *will very likely* cause failure.”

Carbolic Acid in Cases of Compound Fracture.—Mr. Lister states that he now uses a saturated watery solution of carbolic acid instead of the undiluted acid which he at first employed. Some time since, having observed that a solution, containing one part of acid in twenty of water, when injected among the tissues of a suppurating wound of the palm, completely arrested putrefaction, he concluded that such a solution would be suitable for compound fractures. He has therefore employed this solution in all the cases that have since come under his care, and in no instance has it failed. If, he says, it answers equally well as the strong acid, it is obviously superior to it, since it doesn't produce the slightest sloughing from caustic action, and, being a less powerful irritant, causes a less copious serous effusion. Besides, it may be injected and diffused among the tissues, which are the seat of extravasation, with a freedom which could not be used with the acid of full strength: and it is to this circumstance that he is disposed to attribute the fact that he has obtained success at a period after the infliction of the injury which he should have formerly considered hopeless. In addition, he states that by the use of this solution the obstinate vomiting is prevented, which used to accompany the employment of the strong acid, and which he attributed to the absorption of a previous dose of the acid. (See *British Medical Journal*, November 14.)

New Forceps for Operations on the Eye.—Mr. Bader has invented a pair of new forceps for steadying the eyeball during operations on the eye. The new instrument is made by Messrs. Weiss of the Strand. The body is a copy of the one used at Guy's Hospital for the extraction of eyelashes. The branches are broad near the points. This gives full control over the points, which are sufficiently sharp to enter the sclerotic under moderate pressure. The object of these forceps is to take hold of the sclerotic. Mr. Bader has also invented a new form of iris forceps with sharp points, which he has found successful in removing the iris when ordinary iris forceps have failed. The branches are the same as those of ordinary iris forceps, as is also

the mode of manipulation. Mr. Bader notes that these forceps should not be used, if it is of consequence that the crystalline lens should be left intact, although he believes that by careful management the iris may be removed with these forceps without wounding the capsule of the crystalline lens. (*Lancet*, October 31.)

Petechial Typhus Fever treated by Feeding.—A case of this kind is reported from St. Mary's Hospital; the patient was a boy aged thirteen. When admitted to hospital he had been ill for a fortnight. His tongue was dry and red; there was a black film of sordes on his lips and teeth. There were numerous more or less small *black spots*, irregular in shape, over his whole body and limbs. Temperature, 99·5, and pulse 105; respiration variable, from 48 to 60 in the minute. His bowels had been opened once since admission: he, however, lay partially on his right side. Dr. Sibson directed that twelve ounces of port wine should be given during the next twenty-four hours, in small quantities, at regular intervals; that in addition abundance of milk should be given him, and that his surface should be sponged, and the sordes carefully cleaned from his mouth and lips. He was given in addition some beef-tea. No medicine, however, was given. Dr. Sibson then ordered large quantities of wine and milk, and in addition beef-tea containing the pulverized meat. On the following day the patient was markedly better, and rapidly convalesced. (See *British Medical Journal*, October 24, 1868.)

On the Value of Quinine in Delirium associated with Rheumatic Pericarditis.—The great value of quinine in acute pericarditis accompanied by delirium is demonstrated in the following case, which occurred in the practice of Dr. Winn. A young gentleman, fifteen years of age, who had been delirious for three days, and had been attacked with symptoms of rheumatic fever about a week previously. On listening to the heart's action loud and extensive friction-sounds were heard. The left wrist was slightly swollen and tender; the tongue red and smooth; bowels slightly confined; skin moist, but not perspiring profusely. The patient had been taking bicarbonate of potash, and a blister had been recently applied to the region of the heart. Dr. Winn ordered two grains and a half of quinine every four hours, combined with mucilage, and twenty grains of bicarbonate of potash. The effect of this treatment was highly satisfactory. On the eighth day the friction-sounds had entirely ceased, the patient was sitting up, and all the dangerous symptoms had disappeared. (*Lancet*, Nov. 14.)

The Treatment of Ricketz.—Mr. Bernard Brodhurst, in a recent Lecture on Orthopædic Surgery, says that the treat-

ment of rickets consists in the employment of all such measures as conduce to the restoration of health—namely, warm clothing, such as flannel next to the skin, and enveloping the trunk and extremities, a diet composed mainly of animal substances, and a dry and pure air. To these may be added tepid bathing, as well as cod-liver oil, and one or other of the various preparations of iron. Constipation and diarrhoea, which are so frequently met with in this affection, are to be met, not by the exhibition of drugs, but by a careful regimen. It is rare indeed that strict attention to diet will not, at least in the commencement of rickets, be sufficient in itself to regulate the secretions, and restore a state of healthy nutrition; but should it not be sufficient to effect this purpose, then recourse may be had to the nitro-muriatic acid bath, which, when used occasionally, and it may seem to be required, is of great value in these affections. Mr. Brodhurst bears willing testimony to the excellence and vast superiority to purgatives and alteratives of the nitro-muriatic acid bath, which was mainly introduced into this country by Sir Ranald Martin. (*Lancet*, Nov. 14.)

The Irritable Uterus and Uterine Flexions.—The discussion raised by Dr. Graily Hewitt's paper on this subject (in the *Practitioner* for August) was resumed with much vigour at the adjourned meeting of the Obstetrical Society, on Nov. 4th. Dr. Routh opposed the idea that the use of pessaries could do any good, in the first instance, in the numerous cases of retroflexion which are produced by a union of these causes—relaxation of the pelvic ligaments, topheaviness of the uterine fundus from inflammation, and then some slight jerk, as from a fall or a jump. It was necessary to reduce the inflammation; till this was done, Hodge's or any similar pessaries could only increase pain, without producing benefit. Dr. Savage dwelt with emphasis on the impossibility of any mere weight of the uterus causing its displacement, unless the immensely strong natural arrangements for retaining it in position were seriously interfered with. No pessary, one excepted, can do much more than keep the womb out of the vagina. But pessaries ease the strain on the cellular tissue, which begins forthwith to regain its healthy tone. Hodge's was the best pessary, because its shape corresponded with that of the contracted vagina, and with it the lateral vaginal action was unhindered, and the series of curative processes referred to permitted. Dr. Braxton Hicks classified cases of retroflexion in four groups, of which two were capable of benefit from pessaries. The largest amount of relief from mechanical support is afforded in those instances where retroflexion was *in transitu*, the supporting tissues not being yet fully stretched; so that when any straining or quick action of the

body ensued, the parts were put on the stretch, and pain was produced. In another class of cases, a state of congestion, hypertrophy, and tenderness was added to retroflexion. If these cases were handled roughly per vaginam, or with the sound, no doubt much mischief might ensue; but if the uterus could be replaced by the postural mode, or even by the sound gently used, then, the uterus being free from concussion against the sacrum, and the tension being taken off the ligaments, great relief would be obtained. The organ could be kept in position by Hodge's pessary, the action of which was not so much to push the fundus up, as to keep the os uteri so far backwards that the retroflexion could not recur. Dr. Barnes believed that simple retroflexion was a cause of real and serious distress in many cases. He found that *congenital* retroflexion was more common than it was supposed to be by Drs. Routh and Braxton Hicks. In such cases Hodge's pessary gave quick relief where there had been most distressing symptoms; and it was therefore certain that inflammation was not necessary to the production of retroflexion. Hodge's pessaries answered admirably for restoring the displaced uterus to its proper position. Hodge himself had made various forms, but it was necessary to remember their common principle; it was that of a lever, made to *float* in the vagina. It should not be fixed, nor should it be made too large, so as to stretch the vagina. He thought Hodge's pessaries could often be used with advantage during inflammation; for the rectification of position reduced the hyperæmia. Dr. Priestly coincided with Dr. Barnes as to the frequency and severity of the symptoms associated with retroflexion as their direct cause. Even the unimpregnated retroflexed uterus had, within his experience, produced very grave symptoms, *e.g.* uncontrollable chronic vomiting, and what appears to be progressive paraplegia. Hodge's pessary gave great relief. Even when there was pain in the pelvis, in connexion with flexions, the uterus was often not the true seat of the pains, which were reflex in their origin.

On the Therapeutic Action of Conium.—Mr. W. B. Kesteven sends us the following case, which illustrates the conclusions at which Dr. John Harley has arrived from experiments on the physiological and therapeutic action of hemlock: "G. F—, about fifty years of age, had for several months endured the intense anxiety and mental worry of commercial embarrassment, inducing many sleepless nights. In April last he consulted me for a condition of the nervous system very like the excitement of delirium tremens, although the usual exciting cause of that malady was wanting. I saw nothing more of him for two or three weeks, when I was sent for by him to visit him at his home. I found him in bed, with a cool skin, soft pulse, eighty

in number, and a moist tongue, suffering severely from spasmodic jerks which seized him in the back, and, extending to the limbs, almost threw him out of bed. He said that he had been suffering these in a less degree for two or three weeks, *i.e.* from soon after he had been to consult me as above mentioned. I prescribed morphia, which however had not the slightest effect upon the symptoms. Calling to mind Dr. John Harley's experiments, from which he had found the action of conium to be confined to the motor centres, resulting in temporary depression of the reflex functions of the spinal cord, and of the functional activity of the corpus striatum, and minor centres of nervous power, I administered one drachm of the succus conii every four hours with very decided benefit. In a couple of days he was able to be about his business, although some slight jerkings remained for several days afterwards. These gradually disappeared under the continued use of the conium. The symptoms in this case were so closely resembling those of tetanus that at first I suspected an attempt at self-destruction by strychnia. A very close inquiry, however, led me to believe that the suspicion was groundless;—at all events the recovery was very marked after the use of the drug. It may be added that the therapeutic action of the medicine was obtained from doses falling short of those required for its full physiological action, which Dr. Harley considers to be essential to its successful therapeutic employment. I should have at once pushed it to its largest dose had I not got what I wanted by the smaller doses."

Peroxide of Hydrogen in Diabetes.—Mr. S. J. Bayfield publishes a case of diabetes cured by the administration of peroxide of hydrogen. He began with half-drachm doses of the ethereal essence of the peroxide, and gradually increased the dose to a drachm three times a day. He also materially relaxed the rigidity of the patient's diet, and "discontinued much that was disagreeable and objectionable for one more consonant to his taste and appetite." After ten weeks' steady perseverance, with occasional fluctuation, the patient quite recovered, and has now kept well for several weeks. He is gaining strength and flesh, and has, in fact, quite recovered. (See *British Medical Journal*, Oct. 17.)

Extracts from British and Foreign Journals.

Tetanus treated with large Doses of Indian Hemp.—Dr. S. G. Chuckerbutty relates (*Indian Annals of Medical Science*, July 1868) the results of this treatment in thirteen cases. In six of these death occurred from the tetanus; the other seven distinctly recovered from the tetanus, though of these three died ultimately from other diseases (dysentery, and hepatic abscess, bronchitis, pleurisy). Hemp was administered in 30 to 40 minim doses of the tincture every two or three hours. It can only be said to have been fairly tried at all in eight out of the thirteen cases, as the remaining five were so very far advanced as to be hopeless.

A New Apparatus for Transfusion.—M. Belina-Swiontkowski has invented, at Helmholtz's suggestion, a new transfusion instrument, in which air-pressure is substituted for piston-pressure, in driving the blood into the vein. The description of it corresponds almost exactly (though we do not doubt the discovery was independent) with that given by Dr. Richardson (*Med. Times*, 1866, vol. i.) of an apparatus for the injection of a compound nutritive fluid into the veins of cholera patients. (*Med. Central Blätt.*)

Treatment of Diarrhœa in Suckling Children.—Dr. Müller of Riga writes a paper on this subject. He says that the causes of the *diarrhœa saburralis* of infants consists in poor milk (especially such as is deficient in butter), improper foods, such as sour cows' milk, &c., neglect of the cleanliness of the child's mouth, or excess even of a kind of food perfectly proper in itself. The alteration of these faults is the chief matter. Dr. Müller greatly objects, as regards treatment, to the multiplying of drugs; and the only strictly medicinal substance which he recommends is calomel in $\frac{1}{8}$ to $\frac{1}{10}$ grain doses, after the plan recommended by Bednar, Barthez and Rilliet, &c. &c. The calomel appears, according to the researches of Voit, to change into corrosive sublimate in the intestinal canal, and in that form to unite with the casein of the food; the formation of this compound prevents the occurrence of fermentative processes. (*Journ. für Kinderkrankheiten*, 5, 6, 1868.)

Influence of Chloride of Sodium and Chloride of Potassium on the Assimilation and Excretion of Iron by the Organism.—Dr. N. Woronichin has made some researches on this point. It is well known, of course, that not only is iron taken up into the system with our ordinary daily food, but also that it overflows, so to speak, to a certain small extent in the urinary secretion, the fæces, &c. Dr. Woronichin fed the dogs on which he experimented with a food which was entirely free from iron—namely, casein prepared free of fat, and distilled water. Comparative experiments were then made by adding soda and potash chlorides respectively to their food. The general results which came out are decided and interesting. Chloride of potassium does very notably increase the quantity of excreted iron; and it is obvious from the wasting of the animals, and from the specific gravity and the otherwise easily estimable characters of the urine it is certain, that this must be due to increased consumption of tissues. The total quantity of urine, moreover, is considerably increased under chloride of potassium. Chloride of sodium, on the other hand, does not produce by any means such a copious elimination of iron in the urine, but it appears to greatly assist the assimilation of iron. Zabelin had already showed that iron, when given internally, is not absorbed by itself simply, but that the process is effected by the agency of chloride of sodium. The very important result, therefore, flows from Woronichin's researches—that the administration of chloride of sodium simultaneously with iron enables a considerable proportion of the iron to be stored up in the organism; while a similar amount of chloride of potassium would have caused nearly all the iron exhibited to be discharged in the secretions. (*Wiener Medizinische Jahrbuch*, 1868, ii.)

A New Kind of Meat Biscuit.—Dr. C. Thiel proposes the following process, by which a meat biscuit may be prepared which is excellent in its nutritive value, and which is singularly steadfast in its composition, for it may be kept three months without turning mouldy. Two pounds of best ox-beef, as free as possible from fat, is cut into minute fragments, soaked with three quarts of distilled water, and strained through a hair sieve. (About two drachms of sulphuric acid is added during the soaking process, to prevent the occurrence of decomposition.) The strained fluid, gradually heated up to about 150° F., is mixed with eight pounds of the best Hungarian wheat meal and two ounces of common salt. (*Ibid.*)

Ergotin as a Remedy for Whooping-Cough.—Dr. Hampel, of Altenburg, records his experience of the use of this remedy in very severe cases of whooping-cough, attended with much hæmorrhage both from the mouth and the nose. He found

it difficult to get children to take the medicine in ordinary forms; so he had it made into lozenges, four to six of which were given for a dose: the daily allowance of ergotin was raised by degrees to two grains. For the first few days the effects were not striking; but after that time a very remarkable cessation of hæmorrhage, convulsion, and all the severer symptoms took place; the sécretion of mucus became free, and the specific spasmodic features of the disease proportionally declined. Hampel particularly speaks of the good effects of ergotin in severe cases, where there were complications with atelectasis, and with subinflammatory lobular affections. (*Der Praktische Artz.* 7, 1868.)

Cure of a very advanced Case of Progressive Muscular Atrophy of all the Limbs, by the Constant Galvanic Current.—Dr. Nasemann relates a most important instance of the curative effect of the constant current in this terrible disease. The patient was a young man of nineteen; and the complaint seemed to follow measles, and to be immediately precipitated by severe exertion with the arms. The development of the muscular atrophy was uncommonly rapid: only about two and a half months were required to bring about complete paralysis, the patient being able neither to walk, stand, nor sit up. The electric contractility¹ is said to have diminished *pari passu* with the extension of the atrophy. Microscopic examination of portions of the atrophied muscles (extracted with the "harpoon") exhibited fatty change; and it is remarkable that the process of cure seemed to restore the muscular fibres to their primitive healthy condition, without the generation of any new muscular tissue. The peripheral terminations of the nerves were not observed to be degenerated at all. The cure was accomplished by the application of a current from twenty Siemens-Halske's (Daniell) cells. The seances were ten minutes long, the copper pole being placed on the nape of the neck, the zinc pole on the cervical sympathetic for five minutes each side. This was continued for three months; and during the next three months the copper pole was applied over the lower, and the zinc pole over the upper part of the cervical sympathetic. The improvement was very rapid and decided, beginning to be perceived even after only one week of treatment. It should be mentioned that the induced current, which was tried in the first instance, only gave pain, without doing any good. In less than eighteen months the cure was complete. (*Berlin Klin. Wochenschr.* 37, 1868.)

¹ It is not said whether this was susceptibility to the induced or the constant current.

The Advantages and Disadvantages of Leeching.—In the last Number (Oct. 31) of the *Bulletin de Thérapeutique* M. F. Bricheteau gives a third and final article on this important subject. Summing up and contrasting the experiences of the ancients and the moderns, the writer adopts the middle course, and admits that leeching is sometimes useful, and is not unfrequently attended with injurious results. Adopting Virchow's maxim that "the blood lives," he says we cannot then with impunity remove blood from even a healthy man, and still less from a diseased one. Formerly, the disease was regarded as a distinct entity which had got into the system, and disturbed the laws under which life was maintained. For us disease is simply an alteration of the ordinary phenomena of life, and is governed by precisely the same laws as health. The physician, then, should exercise much caution in administering leeches. He should consider both the local and general systems, and should remember that the former is always subordinate to the latter. In certain cases leeching produces good results; but its influence is not a passing or temporary one—it is a lasting influence, and one which we should not have recourse to too frequently. Leeching, far from being banished from our systems of therapeutics, should be considered as a most useful process, but which, as it has many dangerous sides, should be employed with much precaution.

The Treatment of Vaginismus.—Professor Scanzoni, of the University of Wurtzburg, has published an account of his method of treating this troublesome affection. His paper has been translated in a late Number of the *Gazette Médicale de Lyon*; and it embraces a lengthy discussion of the mode adopted by Dr. Marion Sims, from whose views the author entirely dissents. Professor Scanzoni attributes the affection not to any special contractile tendency of the orifice of the vagina, but to contractility induced by inflammation of the parts, which inflammation is caused by the futile copulative efforts of an inexperienced spouse. The following is the treatment he employs:—He first enjoins absolute continence. Then for three or four days he gives a tepid bath, 26° Réaumur, night and morning, and in the intervals he applies warm lotions of Goulard's water to the lips of the vulva, and he administers a slight laxative if constipation is present. At the end of this time the redness and swelling have subsided, the vulva is less sensitive, and can bear astringents. He then touches the inflamed portion of the vaginal orifice with a solution of nitrate of silver (10 or 20 grains to the ounce). Having carried on the cauterization for about eight days, he introduces into the vagina a suppository about the size of the little finger, composed of extract of belladonna and cacao

butter. In ordinary cases, he says, this mode of treatment will produce a cure in about three weeks. In the next place, the cure being effected, the author undertakes the dilatation of the vaginal orifice. For this he first uses a prepared sponge; then he uses a speculum of small volume, which he increases in size gradually. With regard to the form of speculum, he prefers the conical speculum of white glass, which he says penetrates more easily into a narrow orifice. The first two or three applications of the instrument are painful, and a certain amount of force must be used to overcome the contraction of the sphincter. But once this obstacle has been overcome, the speculum glides easily into the cavity of the vagina, and may be borne there for from a few minutes to even an hour. In no case in which Professor Scanzoni has employed these measures has he found it necessary to incise the hymen. While engaged in dilating the vagina he still maintains the warm baths and the suppositories, and even occasionally recurs to the use of the nitrate of silver application. He can only remember one case in which, after using this treatment for six or eight weeks, coition could not be performed without pain. Speaking of Dr. Sims' method, he styles it a "bloody operation," which must never be resorted to. He advises, in case there should be any doubt as to the skillfulness of the spouse, "donner le conseil de confier à la femme l'introduction du pénis dans la vagin, car il pourrait arriver que, malgré l'aplanissement des obstacles, l'époux ne sût trouver sa route."

The Physiological Action of Methyl and Ethyl Strychnia.—In a paper published in the *Comptes Rendus*, Nov. 2, MM. Jolivet and Cahours do a great injustice to Messrs. Fraser and Crum Brown, for they announce as their own discoveries precisely the identical facts which Messrs. Fraser and Brown published twelve months since. The experiments of the French *savans* were made on frogs and dogs, and with iodide of ethyl-strychnium and iodide of methyl-strychnium. The results were almost the same as those obtained in the Edinburgh laboratory. The substance having been introduced into the foot of a frog was rapidly absorbed, and produced a gradual and progressive paralysis of movement. At first the animal leaped about the laboratory, but after a while its movements diminished, respiration became arrested, and in about fifteen minutes it lay as if dead. Nevertheless the circulation went on, and the heart continued to beat; and though the frog remained in a state of nearly absolute paralysis during twenty-four or forty-eight hours, at the end of this time it began to move again, and was soon perfectly restored to vitality. Thus it seems, as proved by Messrs. Fraser and Brown, that these ethyl and methyl compounds of strychnia act in a manner very similar to curara. The experiments on

dogs gave slightly different results. In these animals the ethyl-strychnia produced only convulsive effects; the doses required to give rise to these being of course very much larger than those of any ordinary salt of strychnia—indeed in the proportion of four, five, and even ten, to one. The convulsions, too, were different in character from those caused by strychnia, and were slowly produced, and at very long intervals. All the animals experimented on survived.

The Action of Cyclamine in Developing Vibriones.—Some interesting researches have been published by M. Vulpian (*Archives de Physiologie*, No. iii.) on the effects of the active principle of *Cyclamen Europæum* in frogs. M. Vulpian finds that when cyclamine is administered to frogs, either by being placed underneath the skin, or administered by the mouth, the frog, after appearing healthy for a few days, at length dies. Now what is most remarkable about the matter is, that if the blood be examined before death, it will be found to be loaded with small bodies which are undoubtedly vibriones. The blood examined after death is found to be black in colour, and to have lost the power of reddening on exposure to the air. It is further noticed by M. Vulpian that many of the red corpuscles contain vibriones in their interior, and even white corpuscles containing vibriones may also be seen.

Experiments on Transfusion.—Herr H. Mittler lately communicated a very valuable paper on this subject to the Academy of Sciences of Vienna. The following are the more interesting conclusions drawn by the author:—(1) The blood transfused directly from one vessel into another produces no coagulation in the vessels of the animal which receives it, no matter whether the animals be of the same species or not. (2) The blood directly transfused performs its functions within the vascular system much more perfectly than that from which fibrine has been previously removed. (3) A larger quantity of such blood is tolerated than of that previously defibrinated. (4) The blood corpuscles of mammals may be easily seen for four or five days in the blood of birds into which they have been injected. (5) The finest capillaries of mammals present no obstacle to the passage of the elliptical blood globules of birds. (6) The opinions now accepted as to the dangerous character of transfused blood from a different species than that of the animal operated on are erroneous. (7) Experiments have not yet demonstrated definitively whether the transfused blood loses immediately its power of performing its functions when it has been taken from a species different from the animal into which it is introduced, or whether it maintains this power for a certain length of time. (See *L'Institut*, Nov. 18.)

New Treatment for Gonorrhœa.—Dr. H. Oidtmann, of Linnich, has devised the following plan of treating this disease, both in the acute stage, and also in obstinate chronic cases. The patient having been made to urinate, or his urethra having been washed out with an injection of lukewarm water, a bougie is prepared in the following manner:—Its point is besmeared, to the length of about an inch and a quarter, with an ointment (invented by Niemeyer), in which from one to two parts of nitrate of silver and a rather smaller quantity of liq. plumbi diac. are rubbed up with forty parts of ung. cetacei. The point, thus besmeared, is then dipped in a mixture of cod-liver oil and glycerine (equal parts), and introduced into the urethra to the exact length of the anointed portion; it is held there for ten minutes. At the next urination the excess of greasy matter is discharged as a waxlike pellet. This process is repeated thrice daily—morning, noon, and evening; under same circumstances at night also. In proportion as the sensitiveness of the urethra diminishes, less and less of the diluent oil and glycerine is used, till at last the nitrate of silver ointment is employed unguarded. The cure is rapid, and involves no aggravation of the pain. (*Der Praktische Artz.* 9, 1868.)

Carbolized Uterine Sponge Tents.—Dr. G. S. Bryant, of Lexington, Ky., in the course of a paper on the general subject of sponge tents and their application, describes an antiseptic sponge tent which will probably be found valuable, and to the efficacy of which he bears strong testimony. The sponge tent is saturated with a solution of ten or twelve grains of carbolic acid in an ounce of thick gum mucilage, and then wrapped with cord in the ordinary manner. It should be fusiform in shape, and wrapped from the small end, taking care to keep the layers of the cord, as they are carried round the sponge with perfect regularity, in close proximity to each other. By leaving the screw threads—not cutting them down with sand-paper—the tent can be much more easily introduced; giving it a turn, as to an ordinary screw, in the act of inserting it. When made in this way the tent does not slip out, as a smooth one is apt to do; and it should not project more than one-eighth or one-fourth of an inch out of the os. The best instrument the author has found for introducing the tent is a small straight pair of forceps, with an attachment to the handles to make fast the blades. The tent, firmly fixed in the forceps, is inserted as above described, the uterus being held by a vulsella or hook. The tent should always be slightly soaped, more particularly at the small extremity, to enable it to pass with less friction. The carbolic acid not only renders the sponge antiseptic, but its styptic qualities add much to the efficacy of the sponge in many diseased conditions of the mucous membrane. (*American Journ. Med. Sciences*, October.)

Successful Use of Bromide of Potassium in Traumatic Tetanus.—Dr. Henry F. Andrews, of Washington, Geo., relates a case in which a negro had his hand and wrist crushed in a threshing machine, and amputated in consequence. He did well for more than three weeks, when he was attacked with well-marked and severe tetanus. The stump had united perfectly, except at the point where the ligatures passed out. Dr. Andrews tried to pull the ligatures out, but failed. Thirty grains of bromide of potassium were prescribed at once, and twenty grains were ordered to be given every two hours. The relief was speedy; there were no spasms during the following night, and the patient slept several hours: the paroxysms returned next morning, but not so violently. The ligatures could not be removed till two days later. The improvement was steady and progressive, and in a week he was substantially free from the tetanus. Dr. Andrews thinks that the ligatures, remaining so long, were probably the exciting cause of the disease, and that they were probably not drawn sufficiently tight at the time of the operation. (*American Journal*, October.)

Tracheotomy in Croup.—Dr. A. Jacobi has performed tracheotomy for croup on 67 children, with 13 recoveries; but in five instances the operation had no fair chance, as the patients were either dead or moribund at the time, so that the proportion ought to be taken as 13 recovering in 62. Of children under three years, 1 out of 5 operated on recovered; those between three and four, 3 out of 16; of those between four and five, 7 out of 23; of those between five and six, 2 out of 7. The after-treatment of some of the successful cases was protracted; in four of these the cause of the protraction was peculiar. In the second week after operation the larynx, having expelled the false membrane, would resume its natural functions, and the patient breathe normally through the tube and its upper fenestra and the larynx, the anterior opening of the tube having been closed by a cork. But the removal of the tube always caused suffocation, so that it had to be replaced. The cause of this annoying state of things was found to be the presence of small polypoid excrescences originating on the margin of the tracheal wound, in one case on the lower portion of the sore larynx itself. It required a great many applications of nitrate of silver, or subsulphate of iron, to destroy them. Their disappearance would instantly relieve the symptoms, and allow of the final removal of the tube.

In the October Number of the *American Journal*, which contains the above, there is also noticed a paper of Professor Steiner's, which sums up the experience of that high authority on the same subject. Professor Steiner had 52 operations on

children (33 boys and 19 girls), and 18 recoveries; 11 of the latter were boys and 7 girls. The operation is most successful when not too long postponed. The subsequent treatment is all-important; and thus in the hospital, where the greatest care is taken, better results are got than in private practice. Besides the ordinary directions as to light but nutritious food, beer, &c., Steiner recommends the following medicinal treatment. If there be free mucous secretion and expectoration, ipecacuanha, either alone or with extract of bark, should be given. When there is much fever, infusion of digitalis and nitre, or a few drops of tinct. opii, with cold fomentations to the chest. When there is constant dyspnoea, arnica, ammonia, anise, and benzoin; when collapse ensues, wine, camphor, musk. If there be faucial croup, chlorate of potash gargles must be used; or in quite young children the throat should be washed with solution of arg. nit. The tubes must be constantly and properly cleaned. A continued irritative cough often results from ulceration of the tracheal mucous membrane, produced by an accretion upon the portion of the canula within the trachea. When infiltration takes place, followed by loss of substance at the edges of the wound in the windpipe, pieces of charpie wet with solution of chlorate of potash (30 to 60 grains in 6 ounces water) must be applied. When gangrene is threatened, chlorate of potash, quinia, acids and wine must be used. (See also *Prag. Viertel-Jahrschrift* iii. 1868.)

Syrup of Codeia in Whooping-cough, &c.—The *Journal für Kinderkrankheiten* mentions (7, 8, Hft. 1868) that melon-syrup, containing codeia, is at present used as a specific against whooping-cough in Italy. It is also employed in other convulsive coughs of children, especially those which are left behind by acute inflammations. It is likewise employed with effect in the nervous hacking cough of pregnancy, in nervous and sensitive women.

On Delivery by the Feet in cases of Contracted Pelvis.—Dr. Schröder writes on this subject, and takes up a strong position in favour of turning as an *early* expedient in labour, where the pelvis is known to be seriously contracted. He argues that in the early stages of labour, supposing the os to be moderately dilated, the membranes unruptured, and the head not as yet wedged in the pelvic brim, we may be reasonably certain that the operation of turning will not involve serious risk to the mother, much less, indeed, than the risk of a protracted labour. As regards the fœtus, also, he insists that the expulsion of the head is easier when it comes *after* the body than when it comes first. On the other hand, if we leave the case to nature in the early stages, we have only one certain piece

of knowledge. We do know that the bony passage is abnormally narrow : and we do not know, nor can we anyhow ascertain at that period, whether the dimensions of the child's head will admit of its being compressed to the unusual degree thus made necessary for its expulsion ; nor can we foretell, with the least certainty, whether the expulsive power of the uterus will prove equal to the required effort. It may well happen, then, that the only result of our waiting will be that the head may become fixed in the pelvis with a firmness that will make it impossible for the uterus to expel it, especially with the increasing exhaustion of its forces, and under circumstances in which no method of artificial extraction can be practised with hope of success, without the previous performance of craniotomy ; to say nothing of the danger that fetal life may be sacrificed by prolonged pressure on the cord, or by the excessive contraction of the uterus after the waters have broken, preventing the due oxygenation of the placenta by impeding uterine circulation. He allows that we cannot establish more than a general rule, to which it is possible to find exceptions in individual cases, especially in instances where the subject of a narrow pelvis has been known to have borne living children at full time previously. As a general rule, however, in cases where pelvic narrowing is known to exist, and especially where the woman is a primipara, he argues strongly against waiting till the membranes have ruptured. If the accoucheur, however, chooses to await this event, and then immediately afterwards observes with care what degree of effect the pains produce in the progress of the child, he may yet be in time to effect turning without serious difficulty, in case he judges the uterus to be incapable of pushing the fœtus through the narrowed opening with a rapidity which will ensure safety. (*Monatschrift f. Geburtskunde*, September.)

Pumpkin Seeds as a Remedy for Tapeworm.—Dr. D. B. Hoffmann speaks strongly in favour of this medicine, and relates a case in which an entire worm, six feet long, was discharged after the patient had taken a dose of pumpkin seeds, followed by castor-oil and turpentine. (It is unfortunate that we cannot tell what share the two latter substances may have had in producing the happy result!) (*American Journal*, October.)

The Action of Papaverine.—It will be remembered that in the *Practitioner* for August some experiments of Drs. Leidesdorf and Bresslauer were quoted, which appeared to prove that hydrochloride of papaverine (the papaverine of Merk) is a very useful hypnotic, especially applicable to the treatment of mania and delirium. Dr. Hoffmann now states that this salt is not at

all markedly hypnotic nor narcotic in doses of less than six grains, nor can the effect of a six-grain dose be produced by the cumulative action of smaller quantities. He concludes that papaverine is one of the weakest of the alkaloids. (*Wiener Med. Wochensch.* 58, 59.)

Treatment of Eczema by Waterproof Bandaging.—Dr. Schmiedel has followed up Hebra's researches, and now reports the great success of a treatment in which the eczematous part is covered with bandages of linen, waterproofed with vulcanized india-rubber. Partly by compression, partly by exclusion of air, and partly by maintaining a constant perspiration of the part, this proceeding proves eminently successful. It has also the great convenience of allowing the patient to go about his ordinary occupation without difficulty. The author is not prepared to give an opinion whether the *sulphur* in the vulcanized india-rubber does or does not take any part in the cure. (*Central Blätt für die Med. Wissench.* 41, 1868.)

Notes and Queries.¹

MEDICINAL WATERS OF JAMAICA.—In a very interesting though sketchy article "On Jamaica," in a recent number of the *New York Medical Journal*, Dr. Frederick D. Lente describes some of the therapeutic mineral springs of the country, and speaks in high terms of their curative effects. Some of these springs are rich in chloride of calcium, others in sulphur: all have a high specific gravity, and many of them have a temperature of 98° Fahr. and upwards. For more special details of these effects, which are recorded by Dr. Lewis Bowerbank (Custos of Kingston), we must refer our readers to the paper itself.

ADVANTAGES AND DISADVANTAGES OF PODOPHYLLIN.—Dr. E. A. Squibb (U.S.), who has recently given some attention to the pharmaceutical and therapeutical relations of podophyllin, thus sums up his conclusions:—The advantages of the resin podophyllin are: 1. It acts on the upper part of the intestinal tract as exclusively and specially as aloes does on the lower portion; and from this circumstance affects the liver, pancreas, &c., as aloes does the uterus and bladder. 2. It is slow and certain in its operation, and not exhausting. 3. It has little or no tendency to produce constipation after its use. Its disadvantages are, that it is often harsh, disagreeable, and insufficient in its operation, and so peculiar, that it is more badly borne by a large proportion of persons than other similar medicines. When used in large doses, as an active cathartic, it will almost always cause great complaint, and very few physicians will continue to use it thus without acquiring a great prejudice against it.

MR. LISTER'S CARBOLIC ACID-LAC PLASTER.—Mr. Lister states that this plaster is now sold at a very moderate price by the New Apothecaries' Company, Glassford Street, Glasgow. The following is the formula for its preparation:—Take of shell-lac three parts, and crystallized carbolic acid one part. Heat the lac with about

¹ The Editors, being desirous of making this department a useful medium of communication between practitioners, will be glad to receive short notes on theoretical or practical points in therapeutics,—brief jottings on those numerous queries which suggest themselves from time to time to a medical man as he "goes his rounds," but which he has neither the time nor, in some cases, the opportunity of answering. The Editors do not pledge themselves to reply to every question addressed to them, but they hope to make the "department" the means of supplying the information required; and this they can only effect by the hearty assistance of their readers.

a third part of the carbolic acid over a slow fire till the lac is completely melted; then remove from the fire, add the remainder of the acid, and stir briskly till the ingredients are thoroughly mixed. Next strain through muslin, and pour into the machine for spreading plaster; and when the liquid has thickened by cooling to a degree ascertained by experience, spread to the thickness of about one-fiftieth of an inch. Afterwards brush the surface of the plaster lightly with a solution of gutta-percha in about thirty parts of bisulphide of carbon. When the sulphide has all evaporated, the plaster may be piled in suitable length in a tin box.

ARRESTING THE EPILEPTIC AURA.—Dr. Brown-Séquard, in a recently published paper, states that convulsions even of a tetanic character are often arrested by severely irritating the sensory nerves, as by violent flexion of the great toe; the action being similar to arrest of the heart's action by irritation of the pneumogastric nerve. He thus explains the action of the ligature used in epilepsy. The ligature does not act by preventing the passage of an aura to the brain, but by setting up a fresh irritation, which counteracts the pre-existing one.

THERAPEUTIC VALUE OF VERATRUM.—In the Memoir (No. 2) which M. Oulmont has presented to the French Academy, he points out some very important facts regarding the use of veratrum. He has tried the resinous extract in doses of about one centigramme, given at intervals of about an hour, till vomiting occurs. He administered it in pneumonia, pleuritis, and typhoid fever, and found that it lowered the pulse and the temperature, especially the former. In simple pneumonia it would seem to be especially valuable, though its administration is sometimes attended with undesirable consequences. It must not be employed in typhoid fever, and in pleuritis it gave unsatisfactory results.

ON THE MARSHALL HALL METHOD OF PRONE AND POSTURAL RESPIRATION IN DROWNING.—Dr. Richard Ellis, in order to bring this subject down to the capacity of every member of society, reduces "The Ready Method" of Dr. Marshall Hall—in its essentials of prone and postural respiration—to a formula of seven sentences:—"Instantly place the patient on the face and side, supporting the head. Unfasten the clothes about the neck and chest, braces, &c. Wipe and clean the mouth and nostrils. Raise and support the chest on a folded coat or bundle. Roll the patient constantly and gently from the face to the side and back again, occasionally changing the side and supporting the head. On the completion of each turn to the face make a brisk pressure on the body between and below each

shoulder-blade. Dry and rub patient briskly, rubbing upwards." (See *Lancet*, Oct. 24.)

DR. RICHARDSON'S VIEWS ON BLOOD-LETTING.—Our correspondent E. M. is entirely mistaken. We by no means endorse Dr. Richardson's opinions on this subject; but we are anxious to see the whole question fairly discussed.

THE INSTANT CURE OF TOOTHACHE.—A paragraph having lately appeared in the papers to the effect that toothache may be instantly cured by dropping into the carious cavity the gelatinous precipitate obtained by adding carbolic acid to colodion, Dr. T. G. McKendrick sends us the following note in reference to this statement:—"No doubt many will adopt this remedy, but in most cases I venture to say it will be found to be worse than the disease. I have within the last seven days seen three individuals who have had the mucous membrane of the cheeks and lips severely blistered by this so-called remedy; and I have little doubt, if some of the irritant substance escaped into the larynx, severe laryngitis might be the result. Of course, if used by a professional man, these consequences might have been avoided; but I think the cases I have mentioned will serve as a warning against the use of this so-called remedy by those who are ignorant of the necessary precautions. I read your papers with the deepest interest, and I trust the *Practitioner*, which supplies a void in British medical literature, may be supported by the profession."

ATROPIA IN TETANUS.—A case of tetanus successfully treated with atropia is recorded by Mr. G. Oliver, M.B. (Redcar). Mr. Oliver's first visit was paid on the fourth day of the symptoms. He could then see a well-marked *risus sardonicus*. The masseters were rigid, the incisors hardly separable, the cervical and dorsal vertebræ arched forwards; the sterno-mastoids and muscles of back were rigid. There were paroxysms every few minutes, and the pulse was 140. Mr. Oliver ordered $\frac{1}{60}$ of a grain of atropia every three hours, and belladonna liniment to be well rubbed over the spine and rigid muscles. Within twenty-four hours the physiological action of atropia showed itself; then the clonic spasms became less severe and of shorter duration, and the tonic rigidity gave way, first in the legs and neck, then in the back, and last in the abdomen and masseters. On the sixth day rigidity of masseters alone remained. He was kept under the influence of atropia for three weeks. He finally recovered his usual health under the influence of steel and quinine.

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¹ Any of the foreign works may be procured by application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

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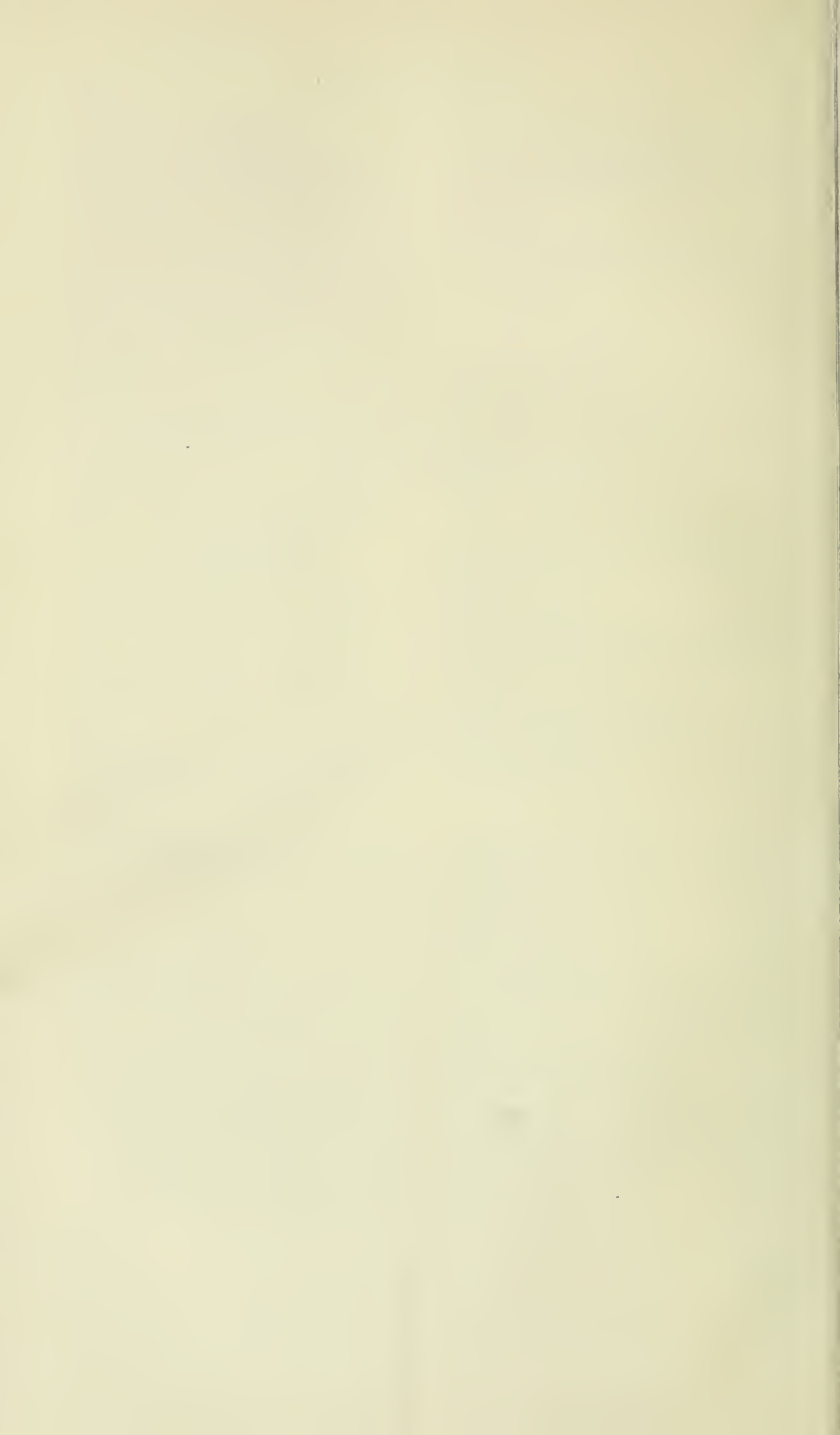
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